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=> FILE REG

=> S TRANSGLUTAMINASE/CN
L1             3 TRANSGLUTAMINASE/CN

FILE 'CAPLUS' ENTERED AT 10:17:20 ON 27 JAN 2003

=> S TRANSGLUTAMINASE OR L1
          3593 TRANSGLUTAMINASE
           352 TRANSGLUTAMINASES
          3632 TRANSGLUTAMINASE
                 (TRANSGLUTAMINASE OR TRANSGLUTAMINASES)
          3067 L1
L2        3981 TRANSGLUTAMINASE OR L1

=> S (36,OOO OR 36K)3A (MOLECULAR(W)WEIGHT OR MW)
MISSING OPERATOR 36K)3A
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> S (36,OOO OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
        274150 36
           253 OOO
             1 OOOS
           254 OOO
                 (OOO OR OOOS)
             0 36,OOO
                 (36(W)OOO)
           201 36K
        910441 MOLECULAR
            43 MOLECULARS
        910473 MOLECULAR
                 (MOLECULAR OR MOLECULARS)
       1945429 MOL
        520851 MOLS
       2229867 MOL
                 (MOL OR MOLS)
       2598291 MOLECULAR
                 (MOLECULAR OR MOL)
         90838 WEIGHT
          9533 WEIGHTS
         97493 WEIGHT
                 (WEIGHT OR WEIGHTS)
       1292112 WT
         95871 WTS
       1341412 WT
                 (WT OR WTS)
       1368852 WEIGHT
                 (WEIGHT OR WT)
         56141 MW
           376 MWS
         56326 MW
                 (MW OR MWS)
L3          22 (36,OOO OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (37,000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
        316183 37
        377647 000
          2522 37,000
                 (37(W)000)
           201 36K
        910441 MOLECULAR
            43 MOLECULARS
        910473 MOLECULAR
                 (MOLECULAR OR MOLECULARS)
       1945429 MOL
        520851 MOLS
       2229867 MOL
                 (MOL OR MOLS)
       2598291 MOLECULAR
                 (MOLECULAR OR MOL)
```

```
        90838 WEIGHT
         9533 WEIGHTS
        97493 WEIGHT
                (WEIGHT OR WEIGHTS)
      1292112 WT
        95871 WTS
      1341412 WT
                (WT OR WTS)
      1368852 WEIGHT
                (WEIGHT OR WT)
        56141 MW
          376 MWS
        56326 MW
                (MW OR MWS)
L4       1062 (37,000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (36,000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
       274150 36
       377647 000
         3176 36,000
                (36(W)000)
          201 36K
       910441 MOLECULAR
           43 MOLECULARS
       910473 MOLECULAR
                (MOLECULAR OR MOLECULARS)
      1945429 MOL
       520851 MOLS
      2229867 MOL
                (MOL OR MOLS)
      2598291 MOLECULAR
                (MOLECULAR OR MOL)
        90838 WEIGHT
         9533 WEIGHTS
        97493 WEIGHT
                (WEIGHT OR WEIGHTS)
      1292112 WT
        95871 WTS
      1341412 WT
                (WT OR WTS)
      1368852 WEIGHT
                (WEIGHT OR WT)
        56141 MW
          376 MWS
        56326 MW
                (MW OR MWS)
L5       1248 (36,000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (38,000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
       246201 38
       377647 000
         3156 38,000
                (38(W)000)
          201 36K
       910441 MOLECULAR
           43 MOLECULARS
       910473 MOLECULAR
                (MOLECULAR OR MOLECULARS)
      1945429 MOL
       520851 MOLS
      2229867 MOL
                (MOL OR MOLS)
      2598291 MOLECULAR
                (MOLECULAR OR MOL)
        90838 WEIGHT
         9533 WEIGHTS
        97493 WEIGHT
                (WEIGHT OR WEIGHTS)
      1292112 WT
        95871 WTS
      1341412 WT
```

```
                (WT OR WTS)
       1368852 WEIGHT
                (WEIGHT OR WT)
         56141 MW
           376 MWS
         56326 MW
                (MW OR MWS)
L6        1386 (38,000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (39,000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
        185298 39
        377647 000
          1927 39,000
                (39(W)000)
           201 36K
        910441 MOLECULAR
            43 MOLECULARS
        910473 MOLECULAR
                (MOLECULAR OR MOLECULARS)
       1945429 MOL
        520851 MOLS
       2229867 MOL
                (MOL OR MOLS)
       2598291 MOLECULAR
                (MOLECULAR OR MOL)
         90838 WEIGHT
          9533 WEIGHTS
         97493 WEIGHT
                (WEIGHT OR WEIGHTS)
       1292112 WT
         95871 WTS
       1341412 WT
                (WT OR WTS)
       1368852 WEIGHT
                (WEIGHT OR WT)
         56141 MW
           376 MWS
         56326 MW
                (MW OR MWS)
L7         867 (39,000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (39000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
            46 39000
           201 36K
        910441 MOLECULAR
            43 MOLECULARS
        910473 MOLECULAR
                (MOLECULAR OR MOLECULARS)
       1945429 MOL
        520851 MOLS
       2229867 MOL
                (MOL OR MOLS)
       2598291 MOLECULAR
                (MOLECULAR OR MOL)
         90838 WEIGHT
          9533 WEIGHTS
         97493 WEIGHT
                (WEIGHT OR WEIGHTS)
       1292112 WT
         95871 WTS
       1341412 WT
                (WT OR WTS)
       1368852 WEIGHT
                (WEIGHT OR WT)
         56141 MW
           376 MWS
         56326 MW
                (MW OR MWS)
L8          24 (39000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (40000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
```

```
          508 40000
          201 36K
       910441 MOLECULAR
           43 MOLECULARS
       910473 MOLECULAR
                (MOLECULAR OR MOLECULARS)
      1945429 MOL
       520851 MOLS
      2229867 MOL
                (MOL OR MOLS)
      2598291 MOLECULAR
                (MOLECULAR OR MOL)
        90838 WEIGHT
         9533 WEIGHTS
        97493 WEIGHT
                (WEIGHT OR WEIGHTS)
      1292112 WT
        95871 WTS
      1341412 WT
                (WT OR WTS)
      1368852 WEIGHT
                (WEIGHT OR WT)
        56141 MW
          376 MWS
        56326 MW
                (MW OR MWS)
L9        102 (40000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (38000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
           99 38000
          201 36K
       910441 MOLECULAR
           43 MOLECULARS
       910473 MOLECULAR
                (MOLECULAR OR MOLECULARS)
      1945429 MOL
       520851 MOLS
      2229867 MOL
                (MOL OR MOLS)
      2598291 MOLECULAR
                (MOLECULAR OR MOL)
        90838 WEIGHT
         9533 WEIGHTS
        97493 WEIGHT
                (WEIGHT OR WEIGHTS)
      1292112 WT
        95871 WTS
      1341412 WT
                (WT OR WTS)
      1368852 WEIGHT
                (WEIGHT OR WT)
        56141 MW
          376 MWS
        56326 MW
                (MW OR MWS)
L10        41 (38000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (37000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
           73 37000
          201 36K
       910441 MOLECULAR
           43 MOLECULARS
       910473 MOLECULAR
                (MOLECULAR OR MOLECULARS)
      1945429 MOL
       520851 MOLS
      2229867 MOL
                (MOL OR MOLS)
      2598291 MOLECULAR
                (MOLECULAR OR MOL)
        90838 WEIGHT
```

```
          9533 WEIGHTS
         97493 WEIGHT
                 (WEIGHT OR WEIGHTS)
       1292112 WT
         95871 WTS
       1341412 WT
                 (WT OR WTS)
       1368852 WEIGHT
                 (WEIGHT OR WT)
         56141 MW
           376 MWS
         56326 MW
                 (MW OR MWS)
L11         32 (37000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S (36000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)
            99 36000
           201 36K
        910441 MOLECULAR
            43 MOLECULARS
        910473 MOLECULAR
                 (MOLECULAR OR MOLECULARS)
       1945429 MOL
        520851 MOLS
       2229867 MOL
                 (MOL OR MOLS)
       2598291 MOLECULAR
                 (MOLECULAR OR MOL)
         90838 WEIGHT
          9533 WEIGHTS
         97493 WEIGHT
                 (WEIGHT OR WEIGHTS)
       1292112 WT
         95871 WTS
       1341412 WT
                 (WT OR WTS)
       1368852 WEIGHT
                 (WEIGHT OR WT)
         56141 MW
           376 MWS
         56326 MW
                 (MW OR MWS)
L12         32 (36000 OR 36K)(3A)(MOLECULAR(W)WEIGHT OR MW)

=> S L8,L9,L10,L11,L12
L13        141 (L8 OR L9 OR L10 OR L11 OR L12)

=> S L13 AND L2
L14          0 L13 AND L2

=> S (25 UNITS)
       1282091 25
        252635 UNITS
L15        847 (25 UNITS)
                 (25(W)UNITS)

=> S L15 AND L2
L16          2 L15 AND L2

=> D 1-2 CBIB ABS

L16  ANSWER 1 OF 2  CAPLUS  COPYRIGHT 2003 ACS
2002:639964  Comparison of enzymic properties of microbial
       ***transglutaminase***   from Streptomyces sp.  Umezawa, Yukiko; Ohtsuka,
     Tomoko; Yokoyama, Keiichi; Nio, Noriki (Food Research and Development
     Laboratories, Ajinomoto Co., Inc., Kanagawa, 210-8681, Japan).  Food
     Science and Technology Research, 8(2), 113-118 (English) 2002.  CODEN:
     FSTRFS.  ISSN: 1344-6606.  Publisher: Japanese Society for Food Science
     and Technology.
AB   Microbial   ***transglutaminase***   (TGase) from S. libani was purified
     from its culture broth and its enzymic properties were compared with those
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of TGase from Streptoverticillium mobaraense. TGase was purified by ion-exchange chromatog. and size-exclusion chromatog. The specific activity of the main component was 10.7 units/mg protein, lower than that of Streptoverticillium mobaraense (***25*** ***units*** /mg). Several differences in enzymic properties were found between the 2 enzymes. The optimum temp., stability, and gelation activity of TGase from S. libani were lower than those of TGase from S. mobaraense, whereas the deamidation activity was higher. In addn., the existence of some TGases with different pI values were suggested.

L16 ANSWER 2 OF 2 CAPLUS COPYRIGHT 2003 ACS
1991:533950 Document No. 115:133950 Factor XIII of blood coagulation inhibits the oxidative phagocyte metabolism and suppresses the immune response in vivo. Stief, Thomas W. (Dep. Hematol., Hosp. "Virgen del Rocio", Seville, E-41013, Spain). Thrombosis Research, 63(2), 227-38 (English) 1991. CODEN: THBRAA. ISSN: 0049-3848.
AB Blood coagulation factor XIII (F XIII) belongs to the family of ***transglutaminases*** and is a major cell product of certain subsets of macrophages. The gene for F XIIIA is coupled to the immune response genes of the HLA-region on chromosome 6. F XIII dose-dependently inhibits the in vitro chemiluminescence response of human phagocytes. About 0.1 units of F XIII/mL (final) decreased the chemiluminescence response to about 50%. In addn., about 0.6 units of F XIII/mL inhibits 50% of the release of the lysosomal hydrolase N-acetyl-.beta. glucosaminidase in both immune complex stimulated and unstimulated monocytes. I.p. application of F XIII reduced the activity of phagocytes in a factor dose dependent manner. 0. ***25*** ***Units*** of F XIII reduced the chemiluminescence reaction of murine peritoneal macrophage to about 50% of the activity of PBS treated animals after 2 or 24 h of in vivo incubation. In the Fisher/Lewis rats skin transplantation model, injections of 5 units of F XIII/animal on days 1-7 or on days 10-17 increased the survival times of the transplants from the control value of 17.0 to 26.0 and 23.0 days, resp. F XIII may represent a novel and physiol. immune suppressive agent for a broad range of human diseases of autoimmune character.

```
=> S (24 UNITS)
        705163 24
        252635 UNITS
L17        190 (24 UNITS)
               (24(W)UNITS)

=> S (25(W)UNITS OR U)
       1282091 25
        252635 UNITS
           847 25(W)UNITS
        330468 U
L18     331293 (25(W)UNITS OR U)

=> S 25(W)(UNITS OR U)
       1282091 25
        252635 UNITS
        330468 U
L19       1280 25(W)(UNITS OR U)

=> S L19 AND L2
L20          3 L19 AND L2

=> S L20 NOT L16
L21          1 L20 NOT L16

=> D CBIB ABS

L21 ANSWER 1 OF 1 CAPLUS COPYRIGHT 2003 ACS
1994:624765 Document No. 121:224765 Purification and characterization of a novel trans-glutaminase from filarial nematode Brugia malayi. Singh, Ravindra N.; Mehta, Kapil (M. D. Anderson Cancer Cent., Univ. Texas, Houston, TX, USA). European Journal of Biochemistry, 225(2), 625-34 (English) 1994. CODEN: EJBCAI. ISSN: 0014-2956.
AB A ***transglutaminase*** (pTGase) was purified from the filarial nematode, Brugia malayi. The steps used for purifn. were thermopptn.,
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ammonium sulfate pptn., gel filtration on Superose 12 HR 10/30, ion-exchange chromatog. on a Mono-Q column and further gel filtration on Superose 12 HR 10/30. The last step yielded an electrophoretically homogeneous enzyme protein with 2200-fold purifn. and a reproducible yield of approx. 20%. The purified enzyme had a mol. mass of 56 kDa, specific activity of 2. ***25*** ***U*** /mg protein and an isoelec. point of 7.2. The enzyme was active in the basic pH range with an optimum activity at pH 8.5. The pTGase activity was Ca2+-dependent and was inhibited by ammonia, primary amines, EDTA, and -SH group blocking reagents. The enzyme activity was also inhibited by high salt (NaCl and KCl) concns., detergents, metal ions, and org. solvents. Ampholine (pH 6-8) at 1% (by vol.) caused about 20% inhibition of pTGase activity but at 3% (by vol.) the inhibition increased up to 80%. Similarly, the micromolar concns. of GTP inhibited the enzyme activity only moderately but at millimolar concn. a significant inhibition was obsd. The stability of the pTGase was not affected by 0.1% SDS or other phys. parameters such as freezing and thawing. Further, the pTGase was found to be highly thermostable (stable at 60.degree.C for several hours) with optimum activity obsd. at 55.degree.C. The distinct substrate specificity, unique N-terminal sequence along with the other phys. properties studied, suggested that pTGase is a novel member of ***transglutaminase*** family.

=>
=>

=> S 24(W)(UNITS OR U)
        705163 24
        252635 UNITS
        330468 U
L22   299 24(W)(UNITS OR U)

=> S 23(W)(UNITS OR U)
        373385 23
        252635 UNITS
        330468 U
L23   225 23(W)(UNITS OR U)

=> S 22(W)(UNITS OR U)
        457776 22
        252635 UNITS
        330468 U
L24   283 22(W)(UNITS OR U)

=> S 21(W)(UNITS OR U)
        425342 21
        252635 UNITS
        330468 U
L25   225 21(W)(UNITS OR U)

=> S 20(W)(UNITS OR U)
       1982360 20
        252635 UNITS
        330468 U
L26   1994 20(W)(UNITS OR U)

=> S 19(W)(UNITS OR U)
        396775 19
        252635 UNITS
        330468 U
L27   228 19(W)(UNITS OR U)

=> S 18(W)(UNITS OR U)
        678256 18
        252635 UNITS
        330468 U
L28   383 18(W)(UNITS OR U)

=> S 17(W)(UNITS OR U)
        574528 17
        252635 UNITS

```
        330468 U
L29        267 17(W)(UNITS OR U)

=> S 16(W)(UNITS OR U)
        687468 16
        252635 UNITS
        330468 U
L30        544 16(W)(UNITS OR U)

=> S 15(W)(UNITS OR U)
       1444866 15
        252635 UNITS
        330468 U
L31       1088 15(W)(UNITS OR U)

=> S L22,L23,L24,L25,L26,L27,L28,L29,L30,L31
L32       5290 (L22 OR L23 OR L24 OR L25 OR L26 OR L27 OR L28 OR L29 OR L30 OR
               L31)

=> S L32 AND L2
L33          8 L32 AND L2

=> S L33 NOT (L16 OR L21)
L34          8 L33 NOT (L16 OR L21)

=> D 1-8 CBIB ABS

L34  ANSWER 1 OF 8  CAPLUS  COPYRIGHT 2003 ACS
2002:979292  Study on polymerization of sodium caseinate catalyzed by microbial
      ***transglutaminase***  .  Tang, Chuanhe; Yang, Xiaoquan; Chen, Zhong;
     Peng, Zhizhong (Institute of Food and Bioengineering, South China
     University of Technology, Canton, 510640, Peop. Rep. China).  Shipin Yu
     Fajiao Gongye, 28(6), 17-22 (Chinese) 2002.  CODEN: SPYYDO.  ISSN:
     0253-990X.  Publisher: Shipin Yu Fajiao Gongye.
AB   The polymn. of sodium caseinate by microbial   ***transglutaminase***
     (MTGase) at different conditions was studied.  It was shown that
     .alpha.-and .beta.-caseinate were more easily catalyzed by MTGase than
     k-caseinate, and the biopolymer of sodium caseinate increased as the amt.
     of caseinate declined.  The appropriate conditions of MTGase to catalyze
     the sodium caseinate was followed as: the rate of enzyme activities to
     sodium caseinate at 10-  ***20***     ***U***  /g, pH6.0-8.0, and he best
     appropriate temp. at 37-50.degree..

L34  ANSWER 2 OF 8  CAPLUS  COPYRIGHT 2003 ACS
2002:97003   Document No. 136:400648  Condition for pilot production of
     microbial   ***transglutaminase***   A00: The effect of starch
     pretreatment on microbial   ***transglutaminase***   (MTG) production was
     investigated in a 5 L fermentor..  Zheng, Meiying; Du, Guocheng; Yan,
     Guoliang; Chen, Jian (Key Laboratory of Industrial Biotechnology of
     Ministry of Education, Southern Yangtze University, Wuxi, 214036, Peop.
     Rep. China).  Yingyong Yu Huanjing Shengwu Xuebao, 7(6), 613-616 (Chinese)
     2001.  CODEN: YYHXFX.  ISSN: 1006-687X.  Publisher: Kexue Chubanshe.
AB   The result showed that MTG activity, MTG productivity and MTG yield
     increased by 32%, 32% and 70%, resp. compared with the prodn. from medium
     with unliquified starch.  Gradual scale-up principles were studied during
     the process of MTG pilot prodn.  The prodn. scale was enlarged from the 5
     L fermentor to a 30 L and even a 300 L fermentor.  The results showed that
     the scale up principles of the same aeration rate and the same agitated
     power per vol. were obtained during the gradual scale-up MTG prodn.  When
     the above principles were applied, MTG activity and MTG productivity in 30
     L fermentor were all higher than those in 5 L fermentor.  MTG activity
     obtained 3.  ***15***     ***u***  /mL and av. specific MTG formation rate
     reached 2.68 u h-1 g-1 in 300 L fermentor, which were almost equal to
     those in 5 L fermentor.  Thus, it can be seen that the above principles
     are rational.

L34  ANSWER 3 OF 8  CAPLUS  COPYRIGHT 2003 ACS
1998:662220   Document No. 129:298199  Effect of phenylglyoxal-modified
     .alpha.2-antiplasmin on urokinase-induced fibrinolysis.  Lee, Kyung N.;
     Lee, Steve C.; Jackson, Kenneth W.; Tae, Weon-Chan; Schwartzott, Darlene
     G.; McKee, Patrick (William K. Warren Medical Research Inst., Health Sci.
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Center, Univ. Oklahoma, Oklahoma City, OK, 73190, USA). Thrombosis and Haemostasis, 80(4), 637-644 (English) 1998. CODEN: THHADQ. ISSN: 0340-6245. Publisher: F. K. Schattauer Verlagsgesellschaft mbH.

AB One of the functions of activated blood clotting factor XIII (FXIIIa) is the crosslinking of .alpha.2-antiplasmin (.alpha.2AP) to fibrin. This process results in localization and concn. of .alpha.2AP throughout fibrin, thereby making fibrin more resistant to digestion by plasmin. The authors reasoned that competition by chem.-modified inactive .alpha.2AP (mod.alpha.2AP) with native .alpha.2AP would diminish the resistance of fibrin to digestion by plasmin. Mod.alpha.2AP was prepd. by treating native .alpha.2AP with an Arg-specific reagent, phenylglyoxal. 4 Of 19 Arg residues in .alpha.2AP reacted with phenylglyoxal and resulted in complete loss of plasmin inhibitory activity; however, mod.alpha.2AP competed effectively with native .alpha.2AP for becoming crosslinked to fibrin by FXIIIa catalysis. In the presence of mod.alpha.2AP, urokinase (UK)-induced plasma clot lysis time shortened. Mod.alpha.2AP enhanced UK-induced clot lysis in a whole blood system as shown by the similarities of rates of clot lysis for a mixt. of ***20*** ***U*** /mL UK and 1.5 .mu.M mod.alpha.2AP vs. that induced by 100 U/mL UK without mod.alpha.2AP. Less fibrinogenolysis occurred in whole blood when mod.alpha.2AP was present since much lower UK concns. were needed to achieve the same level of fibrinolysis than when only native .alpha.2AP was present. These results indicate that mod.alpha.2AP enhances UK-induced fibrinolysis by competitive inhibition of factor XIIIa-mediated incorporation of native .alpha.2AP into fibrin.

L34 ANSWER 4 OF 8 CAPLUS COPYRIGHT 2003 ACS

1995:557253 Document No. 123:984 Use of heparanase to identify and isolate anti-heparanase compound. Hoogwerf, Arlene J.; Ledbetter, Steven R. (Upjohn Co., USA). PCT Int. Appl. WO 9504158 A1 19950209, 60 pp. DESIGNATED STATES: W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1994-US8207 19940726. PRIORITY: US 1993-99866 19930729; US 1993-136117 19931013.

AB Purified heparanase having activity of greater than ***20*** ***units*** /.mu.g protein, preferably greater than 50 units heparanase activity per .mu.g protein, is described. The use of heparanase for screening for anti-heparanase compds. is also described. In addn., the use of the high potency heparanase to accelerate wound healing or its use as an immobilized heparanase filter connected to extracorporeal devices to degrade heparin and neutralize its anticoagulant properties during surgery is disclosed.

L34 ANSWER 5 OF 8 CAPLUS COPYRIGHT 2003 ACS

1994:102849 Document No. 120:102849 Characterization of a ***transglutaminase*** expressed in human pancreatic adenocarcinoma cells. Elsaesser, Hans P.; MacDonald, Ray; Dienst, Martina; Kern, Horst F. (Dep. Cell Biol., Univ. Marburg, Marburg, D-35037, Germany). European Journal of Cell Biology, 61(2), 321-328 (English) 1993. CODEN: EJCBDN. ISSN: 0171-9335.

AB A sol. tissue type ***transglutaminase*** (TGases; R-glutaminylpeptide: amine gamma-glutamyltransferase, E.C.2.3.2.13) belonging to a group of widely distributed enzymes which catalyze the reaction between a gamma-carboxyamide group of a protein-bound glutamine residue and various amino groups was characterized in cell lines derived from human pancreatic carcinoma. The enzyme activity was measured by incorporation of [3H]putrescine into N,N-dimethylcasein. It showed a strong dependency on Ca2+, which could not be replaced by Mg2+ but was 80% inhibited by 0.7 mM Mg2+ in the presence of optimal Ca2+ concn. (7 mM). The Km-value in regard to putrescine was 2.6 mM. After centrifugation of cell homogenates at 105,000g 95% of the enzyme activity was found in the supernatant indicating that the TGase in pancreatic tumor cells is sol. This was further substantiated by immunohistochem. showing a homogeneous cytoplasmic distribution of the TGase in pancreatic tumor cells. Mol. sieve chromatog. and Western blot anal. using an antibody against TGase II from human erythrocytes revealed a mol. mass of 80 kDa. In Northern blots with a cDNA of TGase II from mouse macrophages a single transcript approx. 3.4 kbp in size was detected. Polymerase chain reaction anal. using

primers for the coding and 3' -non-coding regions showed in each case a single product with the size expected from the human cDNA of TGase II. Taken these data together, the authors conclude that human pancreatic adenocarcinoma cells express the sol. tissue type TGase II. The enzyme activity of TGase in different pancreatic tumor cell lines varied between 1 unit to about ***17*** ***units*** and this was accompanied by corresponding amts. of protein or mRNA, resp. This is the first time that a TGase is described and characterized in human pancreatic adenocarcinoma cells which are derived from the duct system of this gland. However, in contrast to other cellular systems, only a partial correlation between cellular differentiation or metastatic behavior of the tumor cells with their expression of TGase was obsd.

L34 ANSWER 6 OF 8 CAPLUS COPYRIGHT 2003 ACS
1991:184088 Document No. 114:184088 Manufacture of protein gels with amino sugars. Kono, Mitsutaka; Terajima, Masahiko (Fuji Oil Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 02265440 A2 19901030 Heisei, 3 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-87643 19890405.
AB Pastes contg. proteins and amino sugars are treated at low and/or high temp. to manuf. protein gels with good strength. The pastes may be treated with ***transglutaminase*** from Streptoverticillium sp. before the low- and/or high-temp. treatment. New Fujipro R (soybean protein) was mixed with 0.08% glucosamine.HCl and 0. ***16*** ***U*** ***transglutaminase*** , treated at 37.degree. for 3 h and heated at 80.degree. for 30 min to manuf. a gel with good gel strength.

L34 ANSWER 7 OF 8 CAPLUS COPYRIGHT 2003 ACS
1991:100195 Document No. 114:100195 ***Transglutaminase*** -containing wheat and premix for cake, and manufacture of cake using them. Ashikawa, Noryuki; Fukui, Hideo; Toiguchi, Seiichiro; Motoki, Masao (Showa Sangyo Co., Ltd., Japan; Ajinomoto Co., Inc.). Jpn. Kokai Tokkyo Koho JP 02286031 A2 19901126 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1989-110147 19890428.
AB Cake is manufd. by addn. of 0.1- ***20*** ***units*** ***transglutaminase*** to 1 g wheat protein. Wheat contg. 3 units transglutaminse/g protein was mixed with sucrose, egg, and H2O to make sponge cake in an usual manner, which had good texture and high vol.

L34 ANSWER 8 OF 8 CAPLUS COPYRIGHT 2003 ACS
1985:74539 Document No. 102:74539 Measurement of blood coagulation factor XIIIa formation in plasma containing glycyl-L-prolyl-L-arginyl-L-proline. Miraglia, Charles C.; Greenberg, Charles S. (Med. Cent., Duke Univ., Durham, NC, 27710, USA). Analytical Biochemistry, 144(1), 165-71 (English) 1985. CODEN: ANBCA2. ISSN: 0003-2697.
AB A method to measure directly the formation of blood-coagulation Factor XIIIa in platelet-poor plasma unmodified by heat is described. The synthetic peptide Gly-L-Pro-L-Arg-L-Pro (I), a fibrin-polymn. inhibitor, was used to prevent clotting of platelet-poor plasma. Plasma was dild. to a final concn. of 2.5% (vol./vol.) in 0.1M Tris-HCl, pH 8.5, buffer contg. 25% glycerol, 5 mM CaCl2, and 0.25 mM I and then activated by thrombin (***20*** ***U*** /mL) for 15 min. The Factor XIIIa-catalyzed incorporation of [3H]putrescine into Hammersten casein was used to measure Factor XIIIa formation. The assay detected Factor XIIIa in 2.5-50 .mu.L of thrombin-treated plasma. When purified Factor XIII was added to Factor XIII-deficient plasma, there was complete recovery of the Factor XIII added. I did not inhibit Factor XIIIa activity in thrombin-treated plasma or purified platelet Factor XIIIa. Glycerol stabilized Factor XIIIa activity in thrombin-treated plasma and buffer for 60 min. The presence of fibrinogen in plasma did not modify the assay results. The time course of thrombin-catalyzed Factor XIIIa formation in platelet-poor plasma contg. I was directly measured with the assay.

=> D L2 1500-1600 CBIB ABS

L2 ANSWER 1500 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:533359 Document No. 129:258762 Factor XIIIa cross-links lipoprotein(a) with fibrinogen and is present in human atherosclerotic lesions. Romanic, Anne M.; Arleth, Anthony J.; Willette, Robert N.; Ohlstein, Eliot H. (Department of Cardiovascular Pharmacology, SmithKline Beecham Pharmaceuticals, King of Prussia, PA, 19406, USA). Circulation Research, 83(3), 264-269 (English) 1998. CODEN: CIRUAL. ISSN: 0009-7330.

Publisher: Williams & Wilkins.

AB During the development of atherosclerotic lesions, lipoprotein(a) [Lp(a)], a highly atherogenic lipoprotein, accumulates within fibrin clots attached to blood vessel walls. As Lp(a) accumulates within the fibrin clot with time, fatty streaks are formed that develop into occlusive atherosclerotic plaques. It is not understood, however, which mechanisms are involved in the binding of Lp(a) to fibrin and, hence, the stable incorporation of Lp(a) into the fibrin clot. The results of the present study demonstrate that factor XIIIa, a ***transglutaminase*** that catalyzes the formation of amide bonds between endo-.gamma.-glutaminyl and endo-.epsilon.-lysyl residues of proteins, is capable of crosslinking Lp(a) to fibrinogen, the sol. precursor of fibrin. Biochem. assays were conducted to demonstrate that factor XIIIa cross-links Lp(a) with fibrinogen in a time- and concn.-dependent manner. Addnl., immunohistochem. studies revealed that factor XIII protein expression colocalizes with Lp(a) expression in human atherosclerotic plaques. It is proposed that factor XIIIa-mediated crosslinking of Lp(a) to fibrin effectively increases the local concn. of Lp(a) within a fibrin clot. The accumulation of Lp(a) within the blood vessel promotes an antifibrinolytic environment, foam cell formation, the generation of a fatty streak, and an increase in smooth muscle cell content, all of which may contribute to the pathogenesis of atherosclerosis.

L2 ANSWER 1501 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:527070 Document No. 129:172773 Preparation of protein-encapsulated oil particles using enzyme-catalyzed crosslinking. Soper, Jon C.; Thomas, M. Teresa (Givaudan-Roure (International) S.A., Switz.). Eur. Pat. Appl. EP 856355 A2 19980805, 7 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1998-101258 19980126. PRIORITY: US 1997-791953 19970131.

AB This invention describes enzymic crosslinking of protein-encapsulated oil particles by complex coacervation. A complex coacervate of oil particles, each encapsulated in a protein shell, is stabilized by gelling the protein shell and the shell is subsequently enzymically cross-linked to form thermostable capsules of about 100-300 .mu.. The preferred enzyme is ***transglutaminase*** , and the reaction is performed at pH 7 to achieve the optimal crosslinking rate. The ***transglutaminase*** -catalyzed crosslinking reaction takes place with the complex coacervate maintained at a temp. in the range of about 5.degree.-10.degree. to maintain the structural stability of the complex coacervate.

L2 ANSWER 1502 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:517852 Document No. 129:257979 Role of sperm head syndecan at fertilization in fish. Kudo, Shigeharu (Department of Anatomy, Gunma University School of Medicine, Maebashi, 371-8511, Japan). Journal of Experimental Zoology, 281(6), 620-625 (English) 1998. CODEN: JEZOAO. ISSN: 0022-104X. Publisher: Wiley-Liss, Inc..

AB Fish sperm head plasma membranes have been demonstrated to contain syndecan (transmembrane heparan sulfate proteoglycan) immunofluorohistochem. and using immunoblot anal. and ***transglutaminase*** (TGase) by histochem. To examine the involvement of syndecan in fertilization, mature eggs were inseminated by direct mixing with untreated sperm or with sperm pretreated with an anti-heparan sulfate (HS) antibody monoclonal (mAb), bovine serum albumin, human transferrin, or a TGase inhibitor (monodansylcadaverine, cystamine, and iodoacetamide). The fertilization rates of eggs inseminated with untreated and albumin-pretreated sperm were .apprx.99.3% and 94.7%, resp. Those of eggs pretreated with the anti-HS antibody and transferrin were 0% and 5.4%, resp., whereas use of sperm pretreated with TGase inhibitors resulted in fertilization rates of .apprx.13.2-17.8%. These results indicate that sperm head syndecan play an important role in fish sperm-egg contact and/or binding and that TGase inhibitors may reduce the fertilization rate by inhibiting sperm motility.

L2 ANSWER 1503 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:509131 Document No. 129:146366 Labeled factor XIIIa substrates. Forster, Alan Michael; Knox, Peter; Mendizabal, Marivi; Richardson, Timothy Charles; Storey, Anthony Eamon; Wilson, Ian Andrew; Champion, Susan; Gibson, Alex; Guilbert, Benedicte (Nycomed Amersham PLC, UK). PCT Int. Appl. WO 9831399 A2 19980723, 47 pp. DESIGNATED STATES: W: AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1998-GB157 19980119.

AB A complex of a radiometal or paramagnetic metal ion with a metal chelating agent such as a diaminedioxime has attached thereto a substituent of formula -(Y)mANHR, can function as a substrate for the fibrin-stabilizing Factor XIIIa. The complex is useful for the diagnosis or therapy of thrombosis, embolism, atherosclerosis, inflammation or cancer. E.g., 3,3,6,9,9-pentamethyl-6-[4-[N-(5-aminopentyl)amidosulfonyl]benzmidomethyl]-4,8-diazaundecane-2.10-dione dioxime was prepd., complexed with 99mTc and the biodistribution studied.

L2 ANSWER 1504 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:505456 Document No. 129:106096 In Situ Antigen Immobilization for Stable Organic-Phase Immunoelectrodes. Juelicher, Paul; Haalck, Lutz; Meusel, Markus; Cammann, Karl; Spener, Friedrich (Institut fuer Chemo- und Biosensorik, Muenster, D-48149, Germany). Analytical Chemistry, 70(16), 3362-3367 (English) 1998. CODEN: ANCHAM. ISSN: 0003-2700. Publisher: American Chemical Society.

AB A new method based on enzymic single-step in situ synthesis of hapten-carrier conjugates on electrodes is described yielding stable, reproducible, and reusable org.-phase immunoelectrodes (OPIEs). The electrodes developed were tailored for analyte detection in org. solvents and allow for the anal. of soil exts. without further sample processing and cleanup. Catalyzed by ***transglutaminase*** from a variant of Streptoverticillium mobaraense, the reaction proceeds in aq. soln. with and without addn. of org. media in only 1.5 h. In this study, the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) was chosen as model compd. and chem. amino-functionalized prior to its enzymic immobilization. The high reproducibility of the immobilization procedure allowed for batch calibration of the immunoelectrodes. Moreover, pure methanol or treatment with dild. sulfuric acid used for regeneration studies did not disturb the hapten layer. The OPIE consists of screen-printed carbon electrodes, monoclonal anti-2,4-D antibodies, and the immunochem. recognition reaction and was optimized with regard to a high stability in org. media. For electrochem. detection, horseradish peroxidase was used as enzyme label together with H2O2 as substrate and hexacyanoferrate(II)/(III) as mediator. The OPIE showed high stability upon storage over 93 days. Response times of 17 s (t95) were found to be advantageous compared to those of other biosensors. Including the immunochem. reactions, the complete assay takes 30 min. A calibration curve for 2,4-D in 30% methanol/buffer obtained with 70 electrodes within 4 wk revealed a detection limit of 9 mg/L, a sensitivity of 1.3 nA L mg-1 cm-2, and a repeatability of 6.8%. Although we calcd. a lowered repeatability for reused electrodes of 13.4% and a slightly decreased sensitivity of 0.9 nA L mg-1 cm-2, multiple-used OPIEs could also be applied for calibration.

L2 ANSWER 1505 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:504103 Tissue ***transglutaminase*** selectively modifies gliadin peptides that are recognized by gut-derived T cells in celiac disease. Molberg, Oyvind; McAdam, Stephen N.; Korner, Roman; Quarsten, hanne; Kristiansen, Christel; Madsen, Lars; Scott, Helge; Noren, Ove; Roepstorff, Peter; Lundin, Knut E. A.; Sjostrom, Hans; Sollid, Ludvig M. Nat. Med. (N. Y.), 4(8), 974 (English) 1998. CODEN: NAMEFI. ISSN: 1078-8956. Publisher: Nature America.

AB Unavailable

L2 ANSWER 1506 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:497402 Document No. 129:244235 Improvement of qualities of fish and meat products by ***transglutaminase*** , Activa TG-K Mild and TG-S Mild. Tanno, Hiroyuki; Susa, Yasuyuki; Tanaka, Haruo (General Food Laboratory, Ajinomoto Co., Ltd., Japan). Japan Fudo Saiensu, 37(7), 44-48 (Japanese) 1998. CODEN: JAFSAA. ISSN: 0368-1122. Publisher: Nippon Shokuhin Shuppan K.K..

AB A review with 13 refs. on the application of Activa TG-K mild and TG-S mild, i.e., ***transglutaminase*** , to the fish and meat products, e.g., kamaboko, surimi, and sausage, etc., for improving the eating

qualities.

L2 ANSWER 1507 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:489399 Document No. 129:201566 Coexpression of p53 and tissue ***transglutaminase*** genes in human normal and pathologic adrenal tissues. Adleff, Vilmos; Raicz, Kairoly; Szende, Bela; Toth, Miklos; Moldvay, Judit; Varga, Ibolya; Bezzegh, Attila; Szegedi, Zsolt; Glaz, Edit (Gastroenterological and Endocrinological Research Unit, Second Department of Medicine, Semmelweis University Medical School, Budapest, Hung.). Journal of Steroid Biochemistry and Molecular Biology, 66(1-2), 27-33 (English) 1998. CODEN: JSBBEZ. ISSN: 0960-0760. Publisher: Elsevier Science Ltd..
AB The presence of p53 and tissue ***transglutaminase*** (tTG) gene expressions was investigated in human normal and pathol. adrenal tissues with two aims (1) to det. the tissue content of p53 protein, its mRNA (mRNA) and, esp., tTG mRNA which has not been previously reported and (2) to study possible differences in the coexpression of p53 and tTG in various adrenal disorders. Using Northern blot anal., p53 and tTG mRNAs were detected in each adrenal tissue examd. including 5 normal human adrenals, 6 aldosterone-producing adenomas, 3 Cushing's adenomas, 1 primary nodular adrenocortical hyperplasia causing Cushing's syndrome in an infant, 12 non-hyperfunctioning adrenocortical adenomas, and 4 adrenocortical carcinomas. The results showed a significant pos. correlation between these two mRNAs in all adrenal tissues except adrenocortical carcinomas. Compared to normal adrenals, high p53 mRNA levels were obsd. in aldosterone-producing and Cushing's adenomas and, most markedly, in a tissue from a primary nodular adrenocortical hyperplasia. Also, Cushing's adenomas had significantly higher tTG mRNA contents. Immunohistochem. for wild-type and mutant p53 protein showed numerous p53 pos. cells with a strong nuclear staining in a tissue from a primary nodular adrenocortical hyperplasia, whereas the p53 pos. cells were absent, except those with a faint nuclear staining, in all other adrenal tissues. However, all adrenal tissues showed detectable p53 contents by the more sensitive method of luminometric immunoassay (LIA). Using this method, aldosterone-producing adenomas exhibited significantly higher p53 contents than normal adrenal tissues. These observations may support potentially important roles for p53 and tTG in adrenal pathophysiol., esp. in mechanisms which influence the evolution and/or progression of aldosterone-producing and Cushing's adenomas and, most probably, hyperplasias.

L2 ANSWER 1508 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:489090 Document No. 129:200540 Detection of Ca2+-dependent ***transglutaminase*** activity in root and leaf tissue of monocotyledonous and dicotyledonous plants. Lilley, Graham R.; Skill, James; Griffin, Martin; Bonner, Philip L. R. (Department Life Sciences, The Nottingham Trent University, Nottingham, NG11 8NS, UK). Plant Physiology, 117(3), 1115-1123 (English) 1998. CODEN: PLPHAY. ISSN: 0032-0889. Publisher: American Society of Plant Physiologists.
AB Protein extd. from root and leaf tissue of the dicotyledonous plants pea (Pisum sativum) and broad bean (Vicia faba) and the monocotyledonous plants wheat (Triticum aestivum) and barley (Hordeum vulgare) were shown to catalyze the incorporation of biotin-labeled cadaverine into microtiter-plate-bound N',N'-dimethylcasein and the crosslinking of biotin-labeled casein to microtiter-plate-bound casein in a Ca2+-dependent manner. The crosslinking of biotinylated casein and the incorporation of biotin-labeled cadaverine into N',N'-dimethylcasein were time-dependent reactions with a pH optimum of 7.9. ***Transglutaminase*** activity was shown to increase over a 2-wk growth period in both the roots and leaves of pea. The product of ***transglutaminase*** 's protein-crosslinking activity, .epsilon.-(.gamma.-glutamyl)lysine isodipeptide, was detected in root and shoot protein from pea, broad bean, wheat, and barley by cation-exchange chromatog. The product of ***transglutaminase*** 's protein-crosslinking activity, .epsilon.-(.gamma.-glutamyl)lysine isodipeptide, was detected in root and shoot protein from pea, broad bean, wheat, and barley by cation-exchange chromatog. The presence of the isodipeptide was confirmed by reversed-phase chromatog. Hydrolysis of the isodipeptide after cation-exchange chromatog. confirmed the presence of glutamate and lysine.

L2 ANSWER 1509 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:485637 Document No. 129:227486 Active site labeling of erythrocyte ***transglutaminase*** by o-phthalaldehyde. Matteucci, Gabriella; Lanzara, Vincenzo; Ferrari, Carlo; Hanau, Stefania; Bergamini, Carlo M. (Department Biochemistry Molecular Biology, University Ferrara, Ferrara, I-44100, Italy). Biological Chemistry, 379(7), 921-924 (English) 1998. CODEN: BICHF3. ISSN: 1431-6730. Publisher: Walter de Gruyter & Co..

AB Tissue-type ***transglutaminase*** (I) was inactivated in a time-dependent way during incubation with submillimolar concns. of o-phthalaldehyde (II), with affinity labeling kinetics. The rate of I inactivation by II was greatly enhanced in the presence of the essential enzyme cofactor, Ca2+, and was decreased by GTP, an allosteric inhibitor. A fluorescent isoindole deriv. was formed during the modification apparently through crosslinkage of active site Cys-277 to a Lys residue. These data and the quenching of fluorescence by addn. of Ca2+ suggest that the enzyme active site is directly involved in the inactivation process.

L2 ANSWER 1510 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:484737 Document No. 129:148318 Manufacture of heat-resistant microcapsules. Inoue, Isao (Riken Vitamin Co., Japan). Jpn. Kokai Tokkyo Koho JP 10191950 A2 19980728 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1997-15941 19970113.

AB Hydrophobic substances such as carotenoids and vitamins are encapsulated with protein gelation agent treated with ***transglutaminase*** for crosslinking and hardening to give heat-resistant microcapsules with 0.1-5 mm in diam. The microcapsules used in bakery products and also in beverages.

L2 ANSWER 1511 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:479608 Document No. 129:91432 Cloning and expression of heat-stable bacterial endoglucanase gene and use of enzyme in industrial processes. Schulein, Martin; Bjornvad, Mads Eskelund; Norrevang, Iben Angelica (Novo Nordisk A/S, Den.). PCT Int. Appl. WO 9828410 A1 19980702, 53 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1997-DK583 19971219. PRIORITY: DK 1996-1483 19961220.

AB An enzyme prepn. comprising an endo-1,4-.beta.-glucanase having optimum activity at a temp. above 85.degree. which is endogenous to a strain belonging to the Gram pos. bacteria, e.g., the strain Dictyoglomus DSM 6262, or which exhibits an activity towards CM-cellulose (CMC assay) at 70.degree. and pH 10 which is higher than 50% relative to the activity at 70.degree. and the optimum pH; and a DNA construct comprising a DNA sequence encoding the endo-1,4-.beta.-glucanase are disclosed. The enzyme is useful, e.g., in the textile industry for improving the properties of cellulosic fibers or fabric or for providing a stone-washed look of denim; or in industrial cleaning processes; or in heat extruded polymeric material; or in the conversion of biomass to sugars; or in the prodn. of alc.; or for predigestion of, e.g., grains used in feed prodn.; or in the prodn. of instant coffee or similar extn. processes. The Dictyoglomus cellulase gene was cloned, sequenced, and expressed in Bacillus subtilis. The recombinant enzyme was used for biopolishing cotton fabric.

L2 ANSWER 1512 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:471013 Document No. 129:239545 Peroxisome proliferators induce apoptosis in hepatoma cells. Canuto, Rosa A.; Muzio, Giuliana; Bonelli, Gabriella; Maggiora, Marina; Autelli, Riccardo; Barbiero, Giuseppe; Costelli, Paola; Brossa, Olga; Baccino, Francesco M. (Department of Clinical and Biological Sciences, San Luigi Gonzaga Hospital, University of Turin, Turin, 10043, Italy). Cancer Detection and Prevention, 22(4), 357-366 (English) 1998. CODEN: CDPRD4. ISSN: 0361-090X. Publisher: Blackwell Science, Inc..

AB In the AH-130 hepatoma, a poorly differentiated tumor, maintained by weekly transplantations in rats, a low percentage of cells spontaneously underwent apoptosis, mainly during the transition from logarithmic-to stationary-growth phase. It was possible to induce massive apoptosis of cells by treating them with clofibrate, a peroxisome proliferator and hypolipidemic drug. Similar results were obtained with HepG2 cells. With

1 mM clofibrate, apoptosis began to manifest itself after 1 h of treatment in vitro, and was assessed by morphol. anal., by DNA fragmentation carried out with agarose gel electrophoresis, and with flow cytometric detn. of terminal deoxynucleotidyl transferase-mediated dUTP-biotin nick end-labeling. The mechanisms whereby clofibrate induces apoptosis are still unclear. Since the peroxisome proliferator-activated receptor was expressed at a very low level and was not stimulated by clofibrate in the AH-130 hepatoma cells, its involvement seems unlikely. Moreover, lipid peroxidn. was not increased after clofibrate treatment. Phospholipids and cholesterol were significantly decreased. The decreased cholesterol content might suggest an inhibition of the mevalonate pathway and, therefore, of isoprenylation of proteins involved in cell proliferation.

L2 ANSWER 1513 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:463085 Document No. 129:187297 Effect of crosslinking by factor XIIIa on the migration of vascular smooth muscle cells into fibrin gels. Naito, Michitaka; Nomura, Hideki; Iguchi, Akihisa; Thompson, W. Douglas; Smith, Elspeth B. (Department of Geriatrics, Nagoya University School of Medicine, Nagoya, 466-8550, Japan). Thrombosis Research, 90(3), 111-116 (English) 1998. CODEN: THBRAA. ISSN: 0049-3848. Publisher: Elsevier Science Inc..
AB We evaluated the migration of vascular smooth muscle cells into crosslinked fibrin gels, using an in vitro assay system. Vascular smooth muscle cells from bovine fetal aorta migrated into non-crosslinked and crosslinked fibrin gels and showed a characteristic elongated spindle-shaped appearance with long cytoplasmic processes. The cells displayed two-fold increase in migration into crosslinked fibrin gels compared to non-crosslinked gels, suggesting the importance of fibrin crosslinking by factor XIIIa on its three-dimensional structure for the migration of smooth muscle cells.

L2 ANSWER 1514 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:462826 Document No. 129:227310 A new member of .alpha.1-adrenoceptor-coupled G.alpha.h (***transglutaminase*** II) family in pig heart: purification and characterization. Yoo, Soon Moon; Jeong, Hyun Sik; Han, Kee Jung; Cho, Sung-Hye; Lee, Hee Sung; Yun, Hye-Young; Kwon, Nyoun Soo; Baek, Kwang Jin (Department of Biochemistry, College of Medicine, Chung-Ang University, Seoul, 156-756, S. Korea). Experimental and Molecular Medicine, 30(2), 81-86 (English) 1998. CODEN: EMMEF3. ISSN: 1226-3613. Publisher: Korean Society of Medical Biochemistry and Molecular Biology.
AB We previously reported an identification of a 77-kDa GTP-binding protein that co-purified with the .alpha.1-adrenoceptor following ternary complex formation. In the present paper, we report on the purifn. and characterization of this GTP-binding protein (termed G.alpha.h5) isolated from pig heart membranes. After solubilization of pig heart membranes with NaCl, G.alpha.h5 was purified by sequential chromatogs. using DEAE-Cellulose, Q-Sepharose, and GTP-agarose columns. The protein displayed high affinity GTP-.gamma.S binding which is Mg2+-dependent and saturable. The relative order of affinity of nucleotide binding by G.alpha.h5 was GTP> GDP > ITP .mchgt. ATP .gtoreq. adenyl-5'-yl imidodiphosphate, which was similar to that obsd. for other heterotrimeric G-proteins involved in receptor signaling. Moreover, the G.alpha.h5 demonstrated ***transglutaminase*** (TGase) activity that was blocked either by EGTA or GTP.gamma.S. In support of these observations, the G.alpha.h5 was recognized by a specific antibody to G.alpha.h7 or TGase II, indicating a homol. with G.alpha.h (TGase II) family. These results demonstrate that 77-kDa G.alpha.h5 from pig heart is an .alpha.1-adrenoceptor-coupled G.alpha.h (TGase II) family which has species-specificity in mol. mass.

L2 ANSWER 1515 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:454111 Document No. 129:186118 Overproduction of DnaJ in Escherichia coli improves in vivo solubility of the recombinant fish-derived ***transglutaminase*** . Yokoyama, Kei-Ichi; Kikuchi, Yoshimi; Yasueda, Hisashi (Food Research and Development Laboratories, Ajinomoto Co. Inc., Kanagawa, 210-0801, Japan). Bioscience, Biotechnology, and Biochemistry, 62(6), 1205-1210 (English) 1998. CODEN: BBBIEJ. ISSN: 0916-8451. Publisher: Japan Society for Bioscience, Biotechnology, and Agrochemistry.
AB The overexpression of red sea bream (Pagrus major) ***transglutaminase*** (TGase, E.C. 2.3.2.13) in Escherichia coli mostly

leads to the accumulation of biol. inactive enzyme. Although the soly. of the gene products could be improved by cultivation at a lower temp. (26-28.degree.), most of the synthesized TGase was still in the form of insol. aggregates. The effects of overprodn. of mol. chaperones on the intracellular soly. of newly produced recombinant TGase were examd. The over-expression of dnaK or groES/EL did not improve soly. However, DnaJ greatly increased the soly. of the recombinant TGase, resulting in active enzyme in the presence of calcium ions. Co-expression of dnaK along with dnaJ further increased the content of sol. TGase. Under our exptl. conditions, supplementation with both DnaJ and DnaK elevated the TGase activity in the producer cells by roughly 4-fold, compared with the control strain cultured at 30.degree.. Thus, the authors found that DnaJ is important in controlling the soly. of protein overproduced in E. coli.

L2 ANSWER 1516 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:454094 Document No. 129:184908 Molecular cloning of the ***transglutaminase*** gene from Bacillus subtilis and its expression in Escherichia coli. Kobayashi, Katsunori; Hashiguchi, Ken-Ichi; Yokozeki, Kenzo; Yamanaka, Shigeru (Central Research Laboratories, Ajinomoto Co., Inc., Kanagawa, 210-0801, Japan). Bioscience, Biotechnology, and Biochemistry, 62(6), 1109-1114 (English) 1998. CODEN: BBBIEJ. ISSN: 0916-8451. Publisher: Japan Society for Bioscience, Biotechnology, and Agrochemistry.
AB We cloned and characterized a gene, tgl, encoding ***transglutaminase*** in Bacillus subtilis. The tgl gene contained a open reading frame 735-nucleotides long that encoded a 245-residue protein with the mol. wt. of 28,300. The deduced amino acid sequence had little sequence similarity with sequences of other ***transglutaminases*** from a Streptoverticillium sp. or from mammals. The -10 and -35 regions of a putative promoter resembled the consensus sequence for the .sigma.K-dependent promoter. In addn., a sequence similar to the consensus sequence for the GerE binding site was found upstream from this region. These findings suggested that tgl was transcribed in the mother cells during a late stage of sporulation. Evidence for this suggestion was that ***transglutaminase*** activity was detected in sporulating cells during the same stage. ***Transglutaminase*** activity was detected in Escherichia coli cells transformed with a plasmid for expression of the tgl gene.

L2 ANSWER 1517 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:453032 Document No. 129:227302 Purification, characterization, and gene cloning of ***transglutaminase*** from Streptoverticillium cinnamoneum CBS 683.68. Duran, R.; Junqua, M.; Schmitter, J. M.; Gancet, C.; Goulas, P. (Laboratoire d'Ecologie Moleculaire, IBEAS, Universite de Pau et des Pays de l'Adour, Pau, F-64000, Fr.). Biochimie, 80(4), 313-319 (English) 1998. CODEN: BICMBE. ISSN: 0300-9084. Publisher: Editions Scientifiques et Medicales Elsevier.
AB The ***transglutaminase*** (TGase; EC 2.3.2.13) from Streptoverticillium cinnamoneum CBS 683.68 has been purified, characterized and its gene cloned. The purified enzyme had a relative mol. mass of 37 660 detd. by mass spectrometry and contained a single Cys residue that was essential for the catalytic activity. Contrary to eukaryotic TGases, this enzyme was calcium-independent. The fact that TGase was able to incorporate a wide variety of aliph. and arom. non-polar compds. suggested that the amine fixation site could be an hydrophobic pocket. S cinnamoneum CBS 683.68 TGase was synthesized as a protein precursor of 411 amino acid residues corresponding to a signal peptide of 81 amino acid residues and a mature TGase of 330 amino acid residues. Amino acid sequence anal. revealed that the S cinnamoneum CBS 683.68 TGase had little sequence homol. with eukaryotic TGases, but shared high identity with the sequence of Streptoverticillium strain S-8112. In accordance with kinetics data, hydropathy anal. showed that the active site of the enzyme was in an hydrophobic environment as for eukaryotic TGases.

L2 ANSWER 1518 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:452895 Document No. 129:174029 A novel Asn344 deletion in the core domain of coagulation factor XIII A subunit: its effects on protein structure and function. Kangsadalampai, Sasichai; Chelvanayagam, Gareth; Baker, Rohan T.; Yenchitsomanus, Pa-Thai; Pung-Amritt, Parichat; Mahasandana, Chularatana; Board, Philip G. (Molecular Genetics Group, John

Curtin School of Medical Research, Australian National University, Canberra, 2601, Australia). Blood, 92(2), 481-487 (English) 1998. CODEN: BLOOAW. ISSN: 0006-4971. Publisher: W. B. Saunders Co..

AB In this study a previously undescribed 3 bp deletion, AAT1030-1032, in the factor XIII A subunit gene, has been detected in a Thai patient. The in-frame deletion results in the translation of a factor XIII A subunit that lacks Asn344. This is the first in-frame deletion to be identified in the factor XIII A subunit gene because six previously reported deletions have all caused frame-shifts. The deletion has been introduced into a factor XIII A subunit cDNA and the deleted polypeptide expressed in yeast. The mRNA encoding the mutant enzyme appears to have normal stability but the translated protein is subject to premature degrdn. In addn., the mutated enzyme exhibited very little ***transglutaminase*** activity compared with the wild-type enzyme. Structural modeling of the deleted enzyme suggests that the absence of Asn344 would have a potent impact on the catalytic activity by reorienting the residues assocd. with the catalytic center. Thus, the Asn344 deletion strongly confirms the significance of the residues surrounding the catalytic center of the factor XIII A subunit.

L2 ANSWER 1519 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:451683 Document No. 129:184904 The cotton-top tamarin carries an extended semenogelin I gene but no semenogelin II gene. Lundwall, Ake (Department of Clinical Chemistry, Lund University, Malmo, Swed.). European Journal of Biochemistry, 255(1), 45-51 (English) 1998. CODEN: EJBCAI. ISSN: 0014-2956. Publisher: Springer-Verlag.

AB Previous studies have shown that the predominant proteins secreted by the seminal vesicles are ***transglutaminase*** substrates which have undergone major structural alterations during evolution. In man, they are known as semenogelin I and II; recently it was shown that, similar to man, several new world and old world monkeys carry two semenogelin genes as well, the exception being the cotton-top tamarin (Saguinus oedipus) with a single gene. This gene has now been cloned and identified as a semenogelin I gene, because of a higher no. of conserved nucleotides in the human semenogelin I gene (89%) than in the human and the rhesus monkey semenogelin II genes (82%). Furthermore, the difference in sequence similarity indicates that the semenogelin II gene was deleted from the genome of a progenitor to the cotton-top tamarin after the duplication that yielded the two semenogelin genes seen in man. Like several other genes expressing seminal-vesicle-secreted ***transglutaminase*** substrates, the cotton-top tamarin semenogelin I gene consists of three exons of 97, 1816 and 146 bp. It codes for a signal peptide of 23 amino acid residues and the secreted protein of 592 amino acid residues. The mol. mass of 66 kDa is 32% larger than that of the human counterpart and, contrary to human semenogelin I, the cotton-top tamarin protein has the potential to be highly glycosylated as there are 14 sites with the consensus-sequence for N-linked glycosylation. Approx. half of the primary structure consists of five nearly identical tandem repeats of 58 amino acid residues, that probably evolved relatively late.

L2 ANSWER 1520 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:441157 Document No. 129:160889 Dough properties and crumb strength of white pan bread as affected by microbial ***transglutaminase*** . Gerrard, J. A.; Fayle, S. E.; Wilson, A. J.; Newberry, M. P.; Ross, M.; Kavale, S. (New Zealand Institute of Crop and Food Research Ltd, Christchurch, N. Z.). Journal of Food Science, 63(3), 472-475 (English) 1998. CODEN: JFDSAZ. ISSN: 0022-1147. Publisher: Institute of Food Technologists.

AB Microbial ***transglutaminase*** (EC 2.3.2.13) forms nondisulfide covalent crosslinks in proteins and is being used in foods. This enzyme may have beneficial effects during breadmaking that are comparable to traditional oxidizing improvers probably acting via formation of disulfide crosslinks. ***Transglutaminase*** greatly improved the crumb strength of baked loaves. This may provide a soln. to common consumer complaints. ***Transglutaminase*** also reduced the required work input and substantially improved the water absorption of the dough. Each of these effects would lower the processing costs for com. bread making.

L2 ANSWER 1521 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:436154 Document No. 129:64899 Nuclear translocation of tissue type ***transglutaminase*** during sphingosine-induced cell death. A novel

aspect of the enzyme with DNA hydrolytic activity. Takeuchi, Yutaka; Ohashi, Hiroshi; Birckbichler, Paul J.; Ikejima, Takashi (Biomedical Research Laboratories, Tsukuba Research Institute, Banyu Pharmaceutical Co., Ltd., Tsukuba, 300, Japan). Zeitschrift fuer Naturforschung, C: Biosciences, 53(5/6), 352-358 (English) 1998. CODEN: ZNCBDA. ISSN: 0341-0382. Publisher: Verlag der Zeitschrift fuer Naturforschung.

AB Tissue type (type 2) ***transglutaminase*** (TGase, EC 2.3.2.13) was implicated in various cellular processes including cell death. To better understand the role of this enzyme in cell death, human melanocytic A375-S2 cells were treated with sphingosine, a cell-signaling mediator. During the rapid onset of cytotoxicity caused by this lipidic agent, tissue TGase was translocated from the cytoplasm to the cell nuclei. This observation was further remarked in relevance to its previously undescribed activity for DNA degrdn. The DNA hydrolytic activity assocd. with tissue TGase was dependent on Mg2+ in contrast to the Ca2+ requirement for the classical crosslinking activity of TGase, and was inhibited by Zn2+. The authors propose a novel aspect of tissue TGase in cell death.

L2 ANSWER 1522 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:430095 Document No. 129:92011 Proteins comprising substrates capable of enzymic crosslinking. Cappello, Joseph (Protein Polymer Technologies, USA). U.S. US 5773577 A 19980630, 70 pp., Cont.-in-part of U. S. Ser. No. 205,518, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1995-397633 19950302. PRIORITY: US 1994-205518 19940303.

AB Polymers are provided comprising protein polymers comprising blocks of repeating units and sequences comprising amino acids, individually or in defined sequences, capable of enzyme catalyzed covalent bond formation for crosslinking, as exemplified by glutamine and/or lysine reactive for FXIII catalyzed isopeptide formation or non-amino acid polymers having side chains comprising such amino acids or sequences, which may be used for prepn. of articles of manuf., particularly cross-linkable compns. By appropriate choice of the polymer, resorbable implantable polymers may be used in internal applications for mammals as formed objects or depots. Protein PPAS1-G comprising a synthetic collagen-like protein contg. oligopeptide blocks of human fibrin .gamma. chain which are substrates for factor XIIIa crosslinking was prepd. with recombinant Escherichia coli. A compn. contg. PPAS1-G and factor XIIIa was found to glue pieces of skin together in a rat skin lap-shear adhesion assay.

L2 ANSWER 1523 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:420954 Document No. 129:147013 Biochemical characterization and localization of ***transglutaminase*** in wild-type and cell-death mutants of the nematode Caenorhabditis elegans. Madi, Andras; Punyiczki, Maria; Di Rao, Massimo; Piacentini, Mauro; Fesus, Laszlo (Department of Biochemistry, University Medical School of Debrecen, Debrecen, H-4012, Hung.). European Journal of Biochemistry, 253(3), 583-590 (English) 1998. CODEN: EJBCAI. ISSN: 0014-2956. Publisher: Springer-Verlag.

AB Tissue ***transglutaminase*** (I) activity was characterized in exts. of C. elegans using a microtiter plate method, and found to be Ca2+-dependent, optimal at pH 8.0, and to be inhibited by EGTA, NH3, iodoacetamide, and GTP. Monoclonal and polyclonal antibodies raised against human I also inhibited the activity and detected a 61-kDa protein from the worm lysate. Constitutive expression of I in the wild-type intestinal cells was revealed by immunohistochem. Potential protein substrates for I were found in worm lysates using a biotin-labeled amine substrate. There was a basal level of protein-bound .epsilon.(.gamma.-glutamyl)lysine crosslinks, characteristic of I activity, formed in situ in adult wild-type animals. Developmental studies revealed that I activity was highest in adult animals, and relatively higher in L1 larvae than in other larval stages. As compared to wild-type I, lower I activity was measured in lysates of ced-3, ced-4, and ced-9 mutants. Crosslink levels were also low in the ced-4 and ced-9 mutants. By contrast, the crosslink content was high in several phagocytosis mutants. The highest concn. was found in the ced-5:ced-7 double phagocytosis mutants which carry an extra no. of dead cells during their lifespan. In accordance with this finding, several ***transglutaminase*** -immunopos. cells were found in both the embryos and in the head of these double phagocytosis mutants. The results suggest that a I is involved in, or related to, the death program of cells in C. elegans and the expression and crosslinking activity of the enzyme may be perturbed in some ced

mutants.

L2 ANSWER 1524 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:420933 Document No. 129:146017 Identification of glycinin in vivo as a polyamine-conjugated protein via a .gamma.-glutamyl linkage. Kang, Hyeog; Lee, Seung Gwan; Cho, Young Dong (Department of Medical Technology, College of Allied Health Science, Korea University, Seoul, 136-703, S. Korea). Biochemical Journal, 332(2), 467-473 (English) 1998. CODEN: BIJOAK. ISSN: 0264-6021. Publisher: Portland Press Ltd..
AB To identify a polyamine-conjugated protein by the action of ***transglutaminase*** in the absence of radiolabeled polyamine, exts. prepd. from the leaves and developing soybean seeds were investigated for the specific activity of ***transglutaminase*** and the content of free polyamines. Here, the authors identified the major storage protein, glycinin, as a polyamine-conjugated protein. This was established by the following procedures: (1) immunolocalization with antibody against putrescine prepd. in rabbit against putrescine-BSA conjugate; (2) immunocross-reactivity on nitrocellulose transblot of the purified glycinin subunits by using antibody against putrescine; (3) identification of polyamines in acid hydrolyzates of purified glycinin; (4) release of polyamines in proteolytic digests through the catalytic action of .gamma.-glutamylamine cyclotransferase, an enzyme specific for the disassembly of .gamma.-glutamylamines. The activity of .gamma.-glutamylamine cyclotransferase was also identified in soybean seeds.

L2 ANSWER 1525 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:417979 Document No. 129:187455 Neurochemical changes in the spinal cord in degenerative motor neuron diseases. Nagata, Yutaka; Fujita, Kimikazu; Yamauchi, Masamitsu; Kato, Toshiaki; Ando, Masato; Honda, Masao (Department of Physiology, School of Medicine, Fujita Health University, Toycake City, 470-1192, Japan). Molecular and Chemical Neuropathology, 33(3), 237-247 (English) 1998. CODEN: MCHNEM. ISSN: 1044-7393. Publisher: Humana Press Inc..
AB A review, with 29 refs. Human amyotrophic lateral sclerosis (ALS), a typical motor neuron disease, is characterized pathol. by selective degenerative loss of motoneurons in the CNS. We have demonstrated significant redns. of neurotransmitter-related factors, such as acetylcholine-(ACh)-synthesizing enzyme activity and glutamate and aspartate contents in the ALS, compared to the non-ALS spinal cord obtained at autopsy. We have also shown considerable redns. in activities of cytochrome-c oxidase (CO), an enzyme contributing to aerobic energy prodn., and ***transglutaminase*** (TG), a Ca2+-dependent marker enzyme for tissue degeneration, in the ALS spinal cord. We found marked increases in fragmented glial fibrillary acidic protein (GFAP), a filamentous protein specifically assocd. with reactive astrocytes, in the ALS spinal cord relative to non-ALS tissue. These biochem. results corresponded well to pathomor-phol. neuronal degenerative loss and reactive proliferation of astroglial components in the ALS spinal cord tissue. However, these results only indicate the final pathol. and biochem. outcomes of ALS, and it is difficult to follow up cause and process in the ALS spinal cord during progression of the disease. Therefore, we used an animal model closely resembling human ALS, motor neuron degeneration (Mnd) mutant mice, a subline of C57BL/6 that shows late-onset progressive degeneration of lower motor neurons with paralytic gait beginning around 6.5 mo of age, to follow the biochem. and pathol. alterations during postnatal development. We detected significant decreases in CO activity during early development and in activity of superoxide dismutase (SOD), an antioxidant enzyme, in later stages in Mnd mutant spinal cord tissue. TG activity in the Mnd spinal cord showed gradual increases during early development reaching a max. at 5 mo, and then tending to decrease thereafter. Amts. of fragmented GFAPs increased continuously during postnatal development in Mnd spinal cord. These biochem. changes were obsd. prior to the appearance of clin. motor dysfunctions in the Mnd mutant mice. Such biochem. analyses using appropriate animal models will be useful for inferring the origin and progression of human ALS.

L2 ANSWER 1526 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:415588 Document No. 129:159441 'Tissue' ***transglutaminase*** in cell death: a downstream or a multifunctional upstream effector?. Melino,

Gerry; Piacentini, Mauro (Dept. Experimental Medicine (F153/D26), Istituto Dermopatico dell'Immacolata (IDI-IRCCS), Biochemistry Laboratory, University of Rome 'Tor Vergata', Rome, 00133, Italy). FEBS Letters, 430(1,2), 59-63 (English) 1998. CODEN: FEBLAL. ISSN: 0014-5793. Publisher: Elsevier Science B.V..

AB A review with 41 refs. Apoptotic cells show morphol. modifications which occur as the result of complex mol. mechanisms involving several proteins including tissue ***transglutaminase*** (I). Although I was originally thought to be responsible for the protein crosslinks which prevent the leakage of intracellular components, thereby reducing inflammation and autoimmunity, recent evidence indicates that I is a multifunctional enzyme involved in the complex upstream regulation of the apoptotic machinery: (1) it functions as a GTP-binding protein to transduce signals; (2) it binds/crosslinks only specific cytosolic and nuclear substrates, suggesting highly specific actions, e.g., on intermediate filaments and in cell cycle control; (3) it is finely tuned by Ca2+, GTP, S-nitrosylation, and polyamines. In light of these recent discoveries, the role of I in the regulation of the crucial balance between survival and death is clearly complex.

L2 ANSWER 1527 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:412532 Document No. 129:146187 Tissue ***transglutaminase*** is an in situ substrate of calpain: regulation of activity. Zhang, Jianwen; Guttmann, Rodney P.; Johnson, Gail V. W. (Department of Psychiatry and Behavioral Neurobiology, University of Alabama at Birmingham, Birmingham, AL, 35294-0017, USA). Journal of Neurochemistry, 71(1), 240-247 (English) 1998. CODEN: JONRA9. ISSN: 0022-3042. Publisher: Lippincott-Raven Publishers.

AB Tissue ***transglutaminase*** (I) is a Ca2+-dependent enzyme that catalyzes the transamidation of specific polypeptide-bound Gln residues, a reaction that is inhibited by GTP. There is also preliminary evidence that, in situ in human neuroblastoma SH-SY5Y cells, calpain and GTP may regulate I indirectly by modulating its turnover by the Ca2+-activated protease, calpain (II). Here, the in vitro and in situ proteolysis of I by II, and modulation of this process by GTP, was examd. I was an excellent substrate for II and was rapidly degraded. Previously it has been demonstrated that GTP binding protected I from degrdn. by trypsin. In a similar manner, guanosine-5'-O-(3-thiotriphosphate) protected I against proteolysis by II. Treatment of SH-SY5Y cells with 1 nM maitotoxin, which increases intracellular Ca2+ levels, resulted in a significant increase in the in situ I activity, with only a slight decrease in I protein levels. In contrast, when GTP levels were depleted by pretreating the cells with tiazofurin, maitotoxin treatment resulted in an .apprx.50% decrease in I protein levels, and a significant decrease in I activity, compared with maitotoxin treatment alone. The addn. of II inhibitors inhibited the degrdn. of I in response to the combined treatment of maitotoxin and tiazofurin and resulted in a significant increase in the in situ I activity. These studies indicate that I is an endogenous substrate of II and that GTP selectively inhibits the degrdn. of I by II.

L2 ANSWER 1528 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:406389 Document No. 129:79862 CAG repeat diseases and neuronal cell death. Igarashi, Shuichi; Koide, Reiji; Shimohata, Takayoshi; Tsuji, Shoji (Brain Res. Inst., Niigata Univ., Niigata, 951, Japan). Jikken Igaku, 16(10), 1277-1280 (Japanese) 1998. CODEN: JIIGEF. ISSN: 0288-5514. Publisher: Yodosha.

AB A review with 10 refs., on involvement of aggregates of proteins contg. polyglutamine in mechanisms of CAG repeat diseases (Huntington's disease, Machado-Joseph disease, dentatorubral-pallidoluysian atrophy, etc.) and neuronal cell death. Involvement of ***transglutaminase*** in aggregate formation is also discussed.

L2 ANSWER 1529 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:405545 Document No. 129:94730 Soybean proteins with improved quality for food preparations. Ito, Kazuko; Kawabata, Yoshishige; Nio, Tsuneki; Nishimura, Yutaka (Ajinomoto Co., Inc., Japan). Jpn. Kokai Tokkyo Koho JP 10165106 A2 19980623 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-327187 19961206.

AB Defatted soybeans are extd. with water, and the ext. is treated with acid, neutralized, stirred, combined with protein hydrolyzates or proteins

obtained from other sources, treated with ***transglutaminase*** , sterilized by heating, and dried to give proteins having desirable properties as food additives.

L2 ANSWER 1530 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:404082 Document No. 129:174027 Arg260-Cys mutation in severe factor XIII deficiency: conformational change of the A subunit is predicted by molecular modeling and mechanics. Ichinose, Akitada; Tsukamoto, Hiroaki; Izumi, Tomonori; Yamazaki, Tomio; Togashi, Masaki; Takamatsu, Junki; Saito, Hidehiko; Umeyama, Hideaki (Department of Molecular Patho-Biochemistry, Yamagata University School of Medicine, Yamagata, 990-9585, Japan). British Journal of Haematology, 101(2), 264-272 (English) 1998. CODEN: BJHEAL. ISSN: 0007-1048. Publisher: Blackwell Science Ltd..
AB To explore the implications of the structure/function relationships in factor XIII, a patient with severe A subunit deficiency was examd. at the DNA and RNA levels. Nucleotide sequence anal. of the patient's DNA amplified by PCR revealed that the patient had a replacement of C by T in the codon for Arg260. RT-PCR anal. demonstrated that only one kind of mRNA coding for the Arg260-Cys mutation was expressed in the patient at a normal level. Another possible defective allele of the A subunit gene with a G-A polymorphism was not expressed (null allele). The substitution of Arg260 by Cys located on the interface of two A subunits would preclude the reciprocal ionic interaction (salt bridge) between Arg260 and Asp404. Mol. modeling and for the first time, mol. mechanics calcd. that Cys260 changed the local conformation of the A subunit and reduced the electrostatic interaction between two monomers, suggesting destabilization of the mol.'s dimer.

L2 ANSWER 1531 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:403528 Document No. 129:108166 Effect of microbial ***transglutaminase*** on thermal gelation of carp actomyosin sol. Ni, Shaowei; Nozawa, Hisanori; Seki, Nobuo (Fac. Fisheries, Hokkaido Univ., Hakodate, 041-8611, Japan). Fisheries Science, 64(3), 434-438 (English) 1998. CODEN: FSCIEH. ISSN: 0919-9268. Publisher: Japanese Society of Fisheries Science.
AB The heat-induced gelling properties of carp actomyosin sol contg. 90 mg protein per g of sol at 0.5 m NaCl and pH 7.0 were investigated by dynamic rheol. measurements, breaking strength measurements, and SDS-PAGE analyses. The results indicated that the sol was characterized by poor gel forming ability caused by the inherent properties of carp actomyosin, no setting response, and relatively strong non-proteolytic gel weakening (modori) around 53.degree.C. Furthermore, at slow heating rate, it was found that myosin heavy chain was cleaved by a myofibril-bound proteinase(s). The addn. of microbial ***transglutaminase*** could induce setting response to actomyosin sol; the extent of the response and resulting gel strength increased markedly with an increase in the ***transglutaminase*** activity level. The non-proteolytic modori was not reduced by the addn. of ***transglutaminase*** .

L2 ANSWER 1532 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:398400 Document No. 129:64914 Parasitic nematode ***transglutaminase*** proteins and nucleic acid molecules, and their uses for inhibitor screening and recombinant vaccines. Chandrashekar, Ramaswamy; Mehta, Kapil (Heska Corporation, USA). PCT Int. Appl. WO 9824887 A2 19980611, 130 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1997-US21999 19971202. PRIORITY: US 1996-781420 19961203.
AB The present invention relates to parasitic nematode ***transglutaminase*** proteins; to parasitic nematode ***transglutaminase*** nucleic acid mols., including those that encode such ***transglutaminase*** proteins; to antibodies raised against such ***transglutaminase*** proteins; and to compds. that inhibit parasitic nematode ***transglutaminase*** activity. The present invention also includes methods to obtain such proteins, nucleic acid

mols., antibodies, and inhibitory compds. Thus, cDNA clones encoding ***transglutaminases*** are provided from Dirofilaria immitis, Brugia malayi, and Onchocerca volvulus. Also included in the present invention are therapeutic compns. comprising such proteins, nucleic acid mols., antibodies and/or inhibitory compds. as well as the use of such therapeutic compns. to protect animals from diseases caused by parasitic nematodes. This invention also relates to the surprising discovery that parasitic nematode ***transglutaminase*** proteins have protein disulfide isomerase activity. Accordingly, this invention relates further to inhibitors of the protein disulfide isomerase activity of said ***transglutaminases*** . ***Transglutaminase*** inhibitors such as monodansylcadaverine, cystamine, and iodoacetamine have inhibitory activity on Dirofilaria immitis larval viability.

L2 ANSWER 1533 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:391679 Document No. 129:119486 Crystal structure of the receptor-binding domain of .alpha.2-macroglobulin. Jenner, Lasse; Husted, Lise; Thirup, Soren; Sottrup-Jensen, Lars; Nyborg, Jens (Department of Molecular and Structural Biology, University of Aarhus, Aarhus C, DK-8000, Den.). Structure (London), 6(5), 595-604 (English) 1998. CODEN: STRUE6. ISSN: 0969-2126. Publisher: Current Biology Ltd..
AB The large plasma proteinase inhibitors of the .alpha.2-macroglobulin superfamily inhibit proteinases by capturing them within a central cavity of the inhibitor mol. After reaction with the proteinase, the .alpha.-macroglobulin-proteinase complex binds to the .alpha.-macroglobulin receptor, present in the liver and other tissues, and becomes endocytosed and rapidly removed from the circulation. The complex binds to the receptor via recognition sites located on a sep. domain of approx. 138 residues positioned at the C terminus of the .alpha.-macroglobulin subunit. The crystal structure of the receptor-binding domain of bovine .alpha.2-macroglobulin (bRBD) has been detd. at a resoln. of 1.9 .ANG.. The domain primarily comprises a nine-strand .beta. structure with a jelly-roll topol., but also contains two small .alpha. helixes. The surface patch responsible for receptor recognition is thought to involve residues located on one of the two .alpha. helixes of the bRBD as well as residues in two of the .beta. strands. Located on this .alpha. helix are two lysine residues that are important for receptor binding. The structure of bRBD is very similar to the approx. 100-residue C-terminal domain of factor XIII, a ***transglutaminase*** from the blood coagulation system.

L2 ANSWER 1534 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:388881 Document No. 129:40421 ***Transglutaminase*** -treated cereal flours and processed foods using them. Yamazaki, Katsutoshi; Soeda, Takahiko (Ajinomoto Co., Inc., Japan). Jpn. Kokai Tokkyo Koho JP 10155438 A2 19980616 Heisei, 9 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-317869 19961128.
AB The cereal flours, which are nonallergenic and storage-stable, are manufd. by treating with ***transglutaminase*** in the conditioning and/or milling processes. Noodles, bread, and sponge cake made with the ***transglutaminase*** -treated wheat flour showed good texture.

L2 ANSWER 1535 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:387393 Document No. 129:131217 Novel inhibitors against the ***transglutaminase*** -catalyzed crosslinking of lens proteins. Lorand, Laszlo; Stern, Andrew M.; Velasco, Pauline T. (Department of Cell and Molecular Biology, Northwestern University Medical School, Chicago, IL, 60611, USA). Experimental Eye Research, 66(5), 531-536 (English) 1998. CODEN: EXERA6. ISSN: 0014-4835. Publisher: Academic Press Ltd..
AB Post-translational modifications by ***transglutaminase*** may contribute to the remodeling of cellular architecture in the development of lens fiber cells, and there is evidence that the enzyme may also play a role in cataract formation. It catalyzes hydrolytic deamidations as well as amide exchanges on select glutamine side chains at endo positions in a small subset of proteins of the lens. N6(.gamma.-glutamyl)lysine crosslinks, the characteristic hallmarks of ***transglutaminase*** activity, were identified in polymers isolated from human cataract. Following up on our earlier studies relating to the inhibition of protein crosslinking by the Ca2+-activated ***transglutaminase*** in the lens, we have now examd. the effects of 2-[(2-oxopropyl)thio]imidazolium derivs., recently described as active site-directed inhibitors for this

family of enzymes. First, we have shown that the compds. at concns. of 1-2 .mu.M were effective in blocking the transamidating activities of partially purified lens ***transglutaminase*** . Then we focused on their efficacy in preventing the formation of the ca. 55 kDa .beta. crystallin dimers in the whole lens tissue. The prodn. of these dimers, crosslinked by N6(.gamma.-glutamyl)lysine isopeptide bridges, is an early sign of ***transglutaminase*** action in rabbit lens, and it can be readily documented by the SDS-PAGE anal. of proteins remaining in the sol. phase after brief exposure of the homogenate to Ca2+. The new compds. proved to be potent inhibitors of ***transglutaminase*** also in this prepn., preventing the crosslinking event at ca. 1 .mu.M concn. Moreover, even when applied at a 1.000-fold greater concn. (2 mM), they did not interfere with the action of calpain which, similarly to the activation of the ***transglutaminase*** system, is triggered by the addn. of Ca2+. The high selectivity of the new compds. for differentially blocking only the ***transglutaminase*** and not the calpain of the lens, is all the more remarkable because these two enzymes share several mechanistic and structural similarities.

L2 ANSWER 1536 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:383073 Document No. 129:107500 ***Transglutaminase*** 1 mutations in lamellar ichthyosis. Loss of activity due to failure of activation by proteolytic processing. Candi, Eleonora; Melino, Gerry; Lahm, Armin; Ceci, Roberta; Rossi, Antonello; Kim, In Gyu; Ciani, Barbara; Steinert, Peter M. (Laboratory of Skin Biology, NIAMS, National Institutes of Health, Bethesda, MD, 20892, USA). Journal of Biological Chemistry, 273(22), 13693-13702 (English) 1998. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.
AB Lamellar ichthyosis is a congenital recessive skin disorder characterized by generalized scaling and hyperkeratosis. It is caused by mutations in the TGM1 gene that encodes the ***transglutaminase*** 1 (TGase 1) enzyme, which is crit. for the assembly of the cornified cell envelope in terminally differentiating keratinocytes. TGase 1 is a complex enzyme existing as both cytosolic and membrane-bound forms. Moreover, TGase 1 is proteolytically processed, and the major functionally active form consists of a membrane-bound 67/33/10-kDa complex with a myristoylated and palmitoylated amino-terminal 10-kDa membrane anchorage fragment. To understand better how point mutations, deletions, and truncations found in lamellar ichthyosis disease affect the structure and function of TGase 1, the authors have expressed in baculovirus and keratinocytes a no. of reported TGase 1 mutants. The structural implications of these mutations were examd. using a homol.-derived three-dimensional model of TGase 1 generated from the known x-ray structure of the related coagulation factor XIIIa enzyme. The present studies demonstrate that loss of TGase 1 activity is not restricted to mutations that directly affect the enzymic activity. The authors report a new class of mutations that impair the subsequent post-synthetic processing of the protein into its highly active functional forms.

L2 ANSWER 1537 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:383070 Document No. 129:119242 The Rho-deamidating cytotoxic necrotizing factor 1 from Escherichia coli possesses ***transglutaminase*** activity. Cysteine 866 and histidine 881 are essential for enzyme activity. Schmidt, Gudula; Selzer, Jorg; Lerm, Maria; Aktories, Klaus (Institut fur Pharmakologie und Toxikologie, Albert-Ludwigs-Universitat Freiburg, Freiburg, D-79104, Germany). Journal of Biological Chemistry, 273(22), 13669-13674 (English) 1998. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.
AB Recently, it has been reported that cytotoxic necrotizing factor 1 (CNF1) from Escherichia coli induces formation of stress fibers by deamidation of glutamine 63 of RhoA (Schmidt, G., Sehr, P., Wilm, M., Selzer, J., Mann, M., and Aktories, K. (1997) Nature 387, 725-729; Flatau, G., Lemichez, E., Gauthier, M., Chardin, P., Paris, S., Fiorentini, C., and Boquet, P. (1997) Nature 387, 729-733). By using mass spectrometric anal., we show now that the toxin transfers ethylenediamine, putrescine, and dansylcadaverine specifically onto glutamine 63 of RhoA. RhoA was also a substrate for guinea pig liver ***transglutaminase*** , which modified not only glutamine 63, but also glutamine residues at positions 52 and 136. Treatment of the fully active N-terminal fragment of CNF1 (amino acid residues 709-1014) with iodoacetamide inhibited both deamidation and

transglutamination activities. Moreover, exchange of cysteine 866 with serine blocked the enzyme activity of the N-terminal CNF1 fragment. In addn., we identified histidine 881 to be essential for the enzyme activity of CNF1. The data indicate that CNF1 shares a catalytic dyad of cysteine and histidine residues with eukaryotic ***transglutaminases*** and cysteine proteases.

L2 ANSWER 1538 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:381602 Document No. 129:134586 New splicing mutations in the human factor XIIIA gene, each producing multiple mutant transcripts of varying abundance. Anwar, Rashida; Miloszewski, Krysztof J. A.; Markham, Alexander F. (Mol. Med. Unit, Dep. Med., St. Jame's Hospital, Leeds, UK). Thrombosis and Haemostasis, 79(6), 1151-1156 (English) 1998. CODEN: THHADQ. ISSN: 0340-6245. Publisher: F. K. Schattauer Verlagsgesellschaft mbH.
AB Coagulation factor XIII, a ***transglutaminase*** which stabilizes blood clots by covalently crosslinking fibrin, is essential for normal hemostasis. FXIII deficiency results in a life-long bleeding disorder with added complications in wound healing and tissue repair. Sequence changes in the human FXIIIA gene, largely missense mutations, are primarily responsible for inherited FXIII deficiency. The authors have carried out mol. anal. of the FXIIIA gene in 2 unrelated FXIII deficient individuals and identified 3 splice site mutations; a G.fwdarw.A at the exon 6 acceptor splice site, a G.fwdarw.A at the exon 7 donor splice site and a coding sequence T.fwdarw.G at the exon S donor splice site. The authors have also examd. the FXIIIA mRNA in these patients and find that each mutation gives rise to multiple transcripts which vary in their relative abundance. The precise mol. mechanisms which result in these variant transcripts, and their relative abundance in our FXIII deficient patients, are discussed.

L2 ANSWER 1539 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:371909 Document No. 129:120589 Up-regulation of p27Kip1, p21WAF1/Cip1 and p16Ink4a is associated with, but not sufficient for, induction of squamous differentiation. Harvat, Beth L.; Wang, Amy; Seth, Prem; Jetten, A. M. (Cell Biology Section, Laboratory of Pulmonary Pathobiology, National Institute of Environmental Health Sciences, National Institutes of Health, Research Triangle Park, NC, 27709, USA). Journal of Cell Science, 111(9), 1185-1196 (English) 1998. CODEN: JNCSAI. ISSN: 0021-9533. Publisher: Company of Biologists Ltd..
AB Irreversible growth arrest is an early and integral part of squamous cell differentiation in normal human epidermal keratinocytes (NHEKs) and is assumed to be linked to the control of expression of differentiation-specific genes. In this study, we examine the link between the mol. events assocd. with growth arrest and the expression of differentiation genes. NHEKs that have been induced to undergo growth arrest and differentiation by suspension culture contain populations in both G1 and G2/M of the cell cycle. The irreversible growth arrest state in NHEKs is characterized by an accumulation of the hypophosphorylated forms of Rb and p130, with subsequent down-regulation of levels of Rb, up-regulation of p130 and assocd. down-regulation of E2F-regulated genes such as cyclin A. These events correlate with an inhibition of G1 cdk activity, mediated in part by an increase in the cdk inhibitors p21WAF1/Cip1, p27Kip1 and p16Ink4a. Flow cytometric and immunoblot anal. demonstrated that the timing of the up-regulation of p27, p16 and p130 corresponds closely with the induction of the squamous-specific genes cornifin .alpha. (SPRR-1) and ***transglutaminase*** type I, suggesting a close link between control of growth arrest and differentiation. However, growth arrest induced by over-expression of p27, p21 or p16 by recombinant adenovirus is not sufficient to induce expression of the differentiation genes, or to invoke the pattern of cell cycle regulatory protein expression characteristic of the differentiation-specific irreversible growth arrest. We conclude that growth arrest mediated by activation of the Rb pathway is not sufficient to trigger terminal squamous differentiation and addnl. signals which can be generated during suspension culture are required to promote the complete differentiation program.

L2 ANSWER 1540 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:367897 Document No. 129:119462 Coagulation factor XIIIa undergoes a conformational change evoked by glutamine substrate. Studies on kinetics of inhibition and binding of XIIIa by a cross-reacting antifibrinogen

antibody. Mitkevich, Olga V.; Shainoff, John R.; DiBello, Patricia M.; Yee, Vivien C.; Teller, David C.; Smejkal, Gary B.; Bishop, Paul D.; Kolotushkina, Irina S.; Fickenscher, Karl; Samokhin, Gennady P. (Russian Cardiology Research Center, Institute of Experimental Cardiology, Moscow, 121552, Russia). Journal of Biological Chemistry, 273(23), 14387-14391 (English) 1998. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB Coagulation factor XIIIa, plasma ***transglutaminase*** (endo-.gamma.-glutamine:.epsilon.-lysine transferase EC 2.3.2.13) catalyzes isopeptide bond formation between glutamine and lysine residues and rapidly cross-links fibrin clots. A monoclonal antibody (5A2) directed to a fibrinogen A.alpha.-chain segment 529-539 was previously obsd. from anal. of end-stage plasma clots to block fibrin .alpha.-chain crosslinking. This prompted the study of its effect on nonfibrinogen substrates, with the prospect that 5A2 was inhibiting XIIIa directly. It inhibited XIIIa-catalyzed incorporation of the amine donor substrate dansylcadaverine into the glutamine acceptor dimethylcasein in an uncompetitive manner with respect to dimethylcasein utilization and competitively with respect to dansylcadaverine. Uncompetitive inhibition was also obsd. with the synthetic glutamine substrate, LGPGQSKVIG. Theor., uncompetitive inhibition arises from preferential interaction of the inhibitor with the enzyme-substrate complex but is also found to inhibit .gamma.-chain crosslinking. The conjunction of the uncompetitive and competitive modes of inhibition indicates in theory that this bireactant system involves an ordered reaction in which docking of the glutamine substrate precedes the amine exchange. The presence of substrate enhanced binding of 5A2 to XIIIa, an interaction deemed to occur through a C-terminal segment of the XIIIa A-chain (643-658, GSDMTVTVQFTNPLKE), 55% of which comprises sequences occurring in the fibrinogen epitope A.alpha.-(529-540) (GSESGIFTNTKE). Removal of the C-terminal domain from XIIIa abolishes the inhibitory effect of 5A2 on activity. Crystallog. studies on recombinant XIIIa place the segment 643-658 in the region of the groove through which glutamine substrates access the active site and have predicted that for catalysis, a conformational change may accompany glutamine-substrate binding. The uncompetitive inhibition and the substrate-dependent binding of 5A2 provide evidence for the conformational change.

L2 ANSWER 1541 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:358585 Document No. 129:107862 Tissue ***transglutaminase*** selectively modifies gliadin peptides that are recognized by gut-derived T cells in celiac disease. Molberg, Oybind; McAdam, Stephen N.; Korner, Roman; Quarsten, Hanne; Kristiansen, Christel; Madsen, Lars; Fugger, Lars; Scott, Helge; Noren, Ove; Roepstorff, Peter; Lundin, Knut E. A.; Sjostrom, Hans; Sollid, Ludvig M. (Inst. Transplant. Immunol., Rikshosp., Univ. Oslo, Oslo, N-0027, Norway). Nature Medicine (New York), 4(6), 713-717 (English) 1998. CODEN: NAMEFI. ISSN: 1078-8956. Publisher: Nature America.

AB The action of tissue ***Transglutaminase*** (TGase) on specific protein-bound glutamine residues plays a crit. role in numerous biol. processes. Here we provide evidence for a new role of this enzyme in the common, HLA-DQ2 (and DQ8) assocd. enteropathy, celiac disease (CD). The intestinal inflammation in CD is pptd. by exposure to wheat gliadin in the diet and is assocd. with increased mucosal activity of TGase. This enzyme has also been identified as the main target for CD-assocd. anti-endomysium autoantibodies, and is known to accept gliadin as one of its few substrates. We have examd. the possibility that TGase could be involved in modulating the reactivity of gliadin specific T cells. This could establish a link between previous reports of the role of TGase in CD and the prevailing view of CD as a T-cell mediated disorder. We found a specific effect of TGase on T-cell recognition of gliadin. This effect was limited to gliadin-specific T cells isolated from intestinal CD lesions. We demonstrate that TGase mediates its effect through an ordered and specific deamidation of gliadins. This deamidation creates an epitope that binds efficiently to DQ2 and is recognized by gut-derived T cells. Generation of epitopes by enzymic modification is a new mechanism that may be relevant for breaking of tolerance and initiation of autoimmune disease.

L2 ANSWER 1542 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:357612 Document No. 129:25353 Bioassays with biocomponents immobilized

on surfaces via ***transglutaminase*** using spacer molecules. Spener, Friedrich; Meusel, Markus; Josten, Andre; Haalck, Lutz (Institut fuer Chemo- und Biosensorik Muenster e.V., Germany). Ger. Offen. DE 19647863 A1 19980528, 10 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1996-19647863 19961119.

AB The invention concerns the prepn. of bioassays by immobilizing biomols. via ***transglutaminase*** and spacer mols.; the mixt. of the solns. contg. the biomol., ***transglutaminase*** and the spacer mol. is applied to the surface. Bioassays imply transducers, e.g. bioelectrodes, optrodes, chips, microbalances, and microtiter plates. Biomols. contain polymers with amino group, biogen amines, and amino functionalized nucleic acids. Polymers are polypeptides, proteins, enzymes, receptors, hapten-protein conjugates, and antibodies. Enzymes used are glucose oxidase, mutarotase, maltose-phosphorylase or their mixt. Spacer mols. are (synthetic) polypeptides with lysine and/or glutamine moieties, or a polymers with aliph. amino groups. ***Transglutaminase*** from bacteria is used. Thus a phosphate enzyme electrode was prepd. by crosslinking maltose phosphorylase, mutarotase and glucose oxidase with ***transglutaminase*** , poly-L-lysine and poly-L-glutamine and the mixt. was applied onto a platinum electrode.

L2 ANSWER 1543 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:350373 Document No. 129:76648 ***Transglutaminase*** -synthesized .gamma.-(glutamyl5) spermidine derivative of substance P is a selective tool for neurokinin-2 receptors characterization. Mancuso, Franca; Costa, Claudia; Calignano, Antonio; Mariniello, Loredana; Rossi, Francesco; Porta, Raffaele; Esposito, Carla (Department of Experimental Pharmacology, University of Naples "Federico II", Naples, Italy). Peptides (New York), 19(4), 683-690 (English) 1998. CODEN: PPTDD5. ISSN: 0196-9781. Publisher: Elsevier Science Inc..

AB The ability of ***transglutaminase*** -synthesized 1,3-diaminopropane, spermidine (Spd), spermine (Spm), and monodansylcadaverine .gamma.-(glutamyl5)derivs. of substance P (SP) to produce bronchoconstriction was investigated. In urethane-anesthetized guinea pigs, i.v. injections of SP derivs. contracted differently bronchial smooth muscle and caused hypotension. The most effective bronchoconstrictor among SP analogs was the (.gamma.-glutamyl5)Spd deriv. of SP (Spd-SP; EC50 = 5.3 nmol/kg), which was more potent than the native peptide (EC50 = 26.5 nmol/kg). In contrast, the .gamma.-(glutamyl5)Spm deriv. of SP (Spm-SP) was found completely unable to cause bronchoconstriction and was significantly less effective than SP in detg. hypotension. The contractile effect of Spd-SP and Spm-SP was investigated in vitro on rat isolated colon, a well-characterized prepn. rich in NK2 receptors. In addn., Spd-SP was tested on the endothelium-denuded rabbit pulmonary artery (RPA) and the hamster isolated trachea (HT), both tissue prepns. contg. only a single functional receptor subtype (NK2A and NK2B, resp.). The results obtained showed that Spd-SP recognizes NK2 receptors occurring on rat isolated colon more effectively (EC50 = II nM) than the native peptide (EC50 = 45 nM). Conversely, Spm-SP evokes a contractile response less effective than that elicited by SP (EC50 = 312 nM). Furthermore, Spd-SP (0.1-10 .mu.g kg-1) produced a concn.-dependent contraction of both HT and RPA, exhibiting a potency resp. 12 and 30 times higher than SP in contracting HT and RPA. The authors' results indicate that the introduction of a Spd moiety at the level of glutamine-5 of SP gives rise to an analog that possesses a different capability to recognize NK2 receptors than the parent peptide. Moreover, since Spd-SP seems to contract more effectively RPA than HT, the authors conclude that it preferentially recognizes the NK2A receptor subtype.

L2 ANSWER 1544 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:343878 Document No. 129:105150 Identification of a transforming growth factor-.beta.1/bone morphogenetic protein 4 (TGF-.beta.1/BMP4) response element within the mouse tissue ***transglutaminase*** gene promoter. Ritter, Steven J.; Davies, Peter J. A. (Dep. Integrative Biology, Pharmacology & Physiology, Univ. Texas Med. School, Houston, TX, 77030, USA). Journal of Biological Chemistry, 273(21), 12798-12806 (English) 1998. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB Tissue ***transglutaminase*** is a calcium-dependent, protein crosslinking enzyme that is highly expressed in cells undergoing apoptosis. The expression of tissue ***transglutaminase*** is

regulated by a variety of mols. including retinoids, interleukin-6, and transforming growth factor-.beta.1 (TGF-.beta.1). Retinoid and interleukin-6 inductions of tissue ***transglutaminase*** expression are mediated by specific cis-regulatory elements located within the first 4.0 kilobase pairs of the promoter of the gene. The present studies were designed to identify the mol. mechanisms mediating the regulation of tissue ***transglutaminase*** gene expression by TGF-.beta. family members. Transient transfection of Mv1Lu cells with ***transglutaminase*** promoter constructs demonstrated that 0.2 nM TGF-.beta.1 maximally induced the activation of the promoter through a 10-base pair TGF-.beta.1 response element (TRE; GAGTTGGTGC) located 868 base pairs upstream of the transcription start site. This same element mediated an inhibitory activity of TGF-.beta.1 on the ***transglutaminase*** promoter in MC3T3 E1 cells. The TRE through which TGF-.beta.1-regulated the activity of the ***transglutaminase*** promoter was necessary and sufficient for bone morphogenetic protein 2-(BMP) and BMP4-dependent inhibition of the tissue ***transglutaminase*** promoter. The TGF-.beta.1, BMP2, and BMP4 regulation of the ***transglutaminase*** promoter activity was similar to the responses we obsd. for the endogenous ***transglutaminase*** activity of Mv1Lu and MC3T3 E1 cells. For BMP2 and BMP4, this regulation was paralleled by a decrease in tissue ***transglutaminase*** mRNA in MC3T3 E1 cells. The results of these expts. suggest that TGF-.beta.1, BMP2, and BMP4 regulation of mouse tissue ***transglutaminase*** gene expression requires a composite TRE located in the 5'-flanking DNA.

L2 ANSWER 1545 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:343475 Document No. 129:160191 ***Transglutaminase*** activity in serum and cerebrospinal fluid in sporadic amyotrophic lateral sclerosis: A possible use as an indicator of extent of the motor neuron loss. Fujita, Kimikazu; Honda, Masao; Hayashi, Ryuichiro; Ogawa, Kazuhito; Ando, Masato; Yamauchi, Masamitsu; Nagata, Yutaka (School of Medicine, Department of Physiology, Fujita Health University, Toyoake, 470-11, Japan). Journal of the Neurological Sciences, 158(1), 53-57 (English) 1998. CODEN: JNSCAG. ISSN: 0022-510X. Publisher: Elsevier Science B.V..

AB The activity of ***transglutaminase*** (TGase), a marker enzyme for tissue degeneration, was examd. in serum and cerebrospinal fluid (CSF) obtained from patients with sporadic amyotrophic lateral sclerosis (SALS), and compared to those from patients without SALS. When the serum TGase activity values from SALS patients were compared against the 'ALS-scale', which is used for clin. evaluation of the progression of ALS, the TGase activity values were higher at the initial stage of the disease than in non-ALS subjects, whereas they became extremely low at the late stage of ALS. The TGase activity in the CSF taken at later than middle stage from ALS patients with definite clin. motor dysfunctions was significantly lower than in that from non-ALS subjects. The authors have previously demonstrated marked redn. of tissue TGase activity in all regions of spinal cord tissue transections from ALS patients, not only in ventral but also lateral and dorsal regions, relative to that in non-ALS patients. These results suggest that some TGase may be leaked out of the spinal cord tissue into the CSF and then into the blood-stream during the progression of ALS, and the enzymic activity finally becomes depleted at the terminal stages of the disease when most of the spinal motor neuronal perikarya have been destroyed.

L2 ANSWER 1546 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:340859 Document No. 129:132861 Enzymic and kinetic properties of blood coagulation factor XIIIa and guinea pig liver ***transglutaminase*** utilizing 6-[N-(4-aminobutyl)-N-ethylamino]-2,3-dihydrophthalazine-1,4-dione, as a novel, specific and sensitive chemiluminescent substrate. Achyuthan, Komandoor E. (ZymeTx, Inc., Oklahoma City, OK, 73104, USA). Journal of Bioluminescence and Chemiluminescence, 13(1), 1-11 (English) 1998. CODEN: JBCHE7. ISSN: 0884-3996. Publisher: John Wiley & Sons Ltd..

AB A novel and sensitive chemiluminescent assay is described to quantitate the acyl transfer activities of blood coagulation factor XIIIa or liver ***transglutaminase*** using aminobutyl-N-ethyl-isoluminol as acyl acceptor and N,N-dimethylcasein, human plasma fibrinogen or fibronectin as acyl donors. The method involved covalently linking aminobutyl-N-ethyl-isoluminol through its free amino group with the .gamma.-carboxamide of protein-bound glutamine resulting in an isopeptide bond; a reaction

catalyzed by both ***transglutaminase*** and factor XIIIa. The protein-bound aminobutyl-N-ethyl-isoluminol was sepd. from non-conjugated amine by pptn. with trichloroacetic acid. The protein-amine conjugate was dissolved in 500 mmol/L NaOH, oxidized using 15 mmol/L ammonium persulfate and light emission quantitated using a luminometer. Optimal conditions were established to detect factor XIIIa and ***transglutaminase*** activities with the chemiluminescent assay. Specificity was demonstrated by lack of activity in the presence of ethylenediamine tetra-acetic acid or unactivated factor XIII, or boiled enzymes, and by competitive inhibition with putrescine and 5'-(biotinamido) pentylamine. The enzymic and kinetic properties of factor XIIIa and ***transglutaminase*** in utilizing aminobutyl-N-ethyl-isoluminol as an acyl acceptor substrate were comprehensively documented. The reaction could be carried out in either a purified system or a complex plasma or cell lysates milieu. The assay is sensitive, specific, and eliminates a need for radioactive reagents. The assay could be used to photolabel reactive glutamines in substrates. The assay could also be adapted to a variety of solid- and soln.-phase formats and is amenable to x-ray film and/or light photog. imaging.

L2 ANSWER 1547 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:335065 Document No. 129:25391 Production of hapten-protein conjugates by means of ***transglutaminase*** . Spener, Friedrich; Meusel, Markus; Josten, Andre (Institut fuer Chemo- und Biosensorik Muenster e.V., Germany). Ger. Offen. DE 19647866 A1 19980520, 10 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1996-19647866 19961119.

AB The invention concerns a simple synthesis of hapten-protein conjugates and hapten-polymer conjugates via ***transglutaminase*** and their application for immunoassays and biosensors. The hapten is a low mol. wt. compd. with amino group(s) or a compd. that has been amino functionalized, e.g. 2,4-dichlorophenoxyacetic acid. Tansglutaminase is of bacterial origin, proteins used are casein, bovine serum albumin or hemocyanin. Polymers are synthetic lysine or glutamine based polypeptides or aliph. polymers with amino or glutamine groups. Immobilized proteins and polymers can be used as well. Thus hapten, ***transglutaminase*** , protein or polymer are mixed and incubated on the surface of a microtiter plate or a biosensor, rinsed and used in an ELISA test or as a biosensor.

L2 ANSWER 1548 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:334322 Document No. 129:40418 Rice cake containing trehalose, sorbitol, or ***transglutaminase*** . Miyao, Munehisa; Ohata, Fumiho (House Food Industrial Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 10136917 A2 19980526 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-296847 19961108.

AB Trehalose, sorbitol, or ***transglutaminase*** is added to rice cake. As the rice cake is cooked in liq. like soup, the cake becomes soft and elastic, but it maintains its original shape in the liq.

L2 ANSWER 1549 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:330899 Document No. 129:106720 Type X collagen and other up-regulated components of the avian hypertrophic cartilage program. Linsenmayer, Thomas F.; Long, Fanxin; Nurminskaya, Maria; Chen, Qian; Schmid, Thomas M. (Department of Anatomy and Cellular Biology, Tufts University Medical School, Boston, MA, 02111, USA). Progress in Nucleic Acid Research and Molecular Biology, 60, 79-109 (English) 1998. CODEN: PNMBAF. ISSN: 0079-6603. Publisher: Academic Press, Inc..

AB A review, with 89 refs. Elucidating the cellular and mol. processes involved in growth and re-modeling of skeletal elements is important for our understanding of congenital limb deformities. These processes can be advantageously studied in the epiphyseal growth zone, the region in which all of the increase in length of a developing long bone is achieved. Here, young chondrocytes divide, mature, become hypertrophic, and ultimately are removed. During cartilage hypertrophy, a no. of changes occur, including the acquisition of synthesis of new components, the most studied being type X collagen. In this review, which is based largely on our own work, we will first examine the structure and properties of the type X collagen mol. We then will describe the supramol. forms into which the mol. becomes assembled within tissues, and how this changes its phys. properties, such as thermal stability. Certain of these studies involve a novel, immunohistochem. approach that utilizes an antitype X collagen monoclonal antibody that detects the native conformation of the mol. We describe the developmental acquisition of the mol., and its

transcriptional regulation as deduced by in vivo footprinting, transient transfection, and gel-shift assays. We provide evidence that the mol. has unique diffusion and regulatory properties that combine to alter the hypertrophic cartilage matrix. These conclusions are derived from an in vitro system in which exogenously added type X collagen moves rapidly through the cartilage matrix and subsequently produces certain changes mimicking ones that have been shown normally to occur in vivo. These include altering the cartilage collagen fibrils and effecting changes in proteoglycans. Last, we describe the subtractive hybridization, isolation, and characterization of other genes up-regulated during cartilage hypertrophy, with specific emphasis on one of these- ***transglutaminase*** .

L2 ANSWER 1550 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:330313 Document No. 129:80126 Distinct nuclear localization and activity of tissue ***transglutaminase*** . Lesort, Mathieu; Attanavanich, Kalaya; Zhang, Jianwen; Johnson, Gail V. W. (Department of Psychiatry and Behavioral Neurobiology, University of Alabama at Birmingham, Birmingham, AL, 35294-0017, USA). Journal of Biological Chemistry, 273(20), 11991-11994 (English) 1998. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB Tissue ***transglutaminase*** is a calcium-dependent transamidating enzyme that has been postulated to play a role in the pathol. of expanded CAG repeat disorders with polyglutamine expansions expressed within the affected proteins. Because intranuclear inclusions have recently been shown to be a common feature of many of these codon reiteration diseases, the nuclear localization and activity of tissue ***transglutaminase*** was examd. Subcellular fractionation of human neuroblastoma SH-SY5Y cells demonstrated that 93% of tissue ***transglutaminase*** is localized to the cytosol. Of the 7% found in the nucleus, 6% copurified with the chromatin-assocd. proteins, and the remaining 1% was in the nuclear matrix fraction. In situ ***transglutaminase*** activity was measured in the cytosolic and nuclear compartments of control cells, as well as cells treated with the calcium-mobilizing agent maitotoxin to increase endogenous tissue ***transglutaminase*** activity. These studies revealed that tissue ***transglutaminase*** was activated in the nucleus, a finding that was further supported by cytochem. anal. Immunofluorescence studies revealed that nuclear proteins modified by ***transglutaminase*** exhibited a discrete punctate, as well as a diffuse staining pattern. Furthermore, different proteins were modified by ***transglutaminase*** in the nucleus compared with the cytosol. The results of these expts. clearly demonstrate localization of tissue ***transglutaminase*** in the nucleus that can be activated. These findings may have important implications in the formation of the insol. nuclear inclusions, which are characteristic of codon reiteration diseases such as Huntington's disease and the spinocerebellar ataxias.

L2 ANSWER 1551 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:326788 Document No. 129:65333 ***Transglutaminase*** in sporulating cells of Bacillus subtilis. Kobayashi, Katsunori; Suzuki, Shun-Ichi; Izawa, Yuko; Yokozeki, Kenzo; Miwa, Kiyoshi; Yamanaka, Shigeru (Central Research Laboratones, Ajinomoto Co., Inc, Kawasaki, 210-0801, Japan). Journal of General and Applied Microbiology, 44(1), 85-91 (English) 1998. CODEN: JGAMA9. ISSN: 0022-1260. Publisher: Microbiology Research Foundation.

AB We screened various Bacillus species producing ***transglutaminase*** (TGase), measured as labeled putrescine incorporated into N,N-dimethylcasein. As a result, we detected TGase activity in sporulating cells of B. subtilis, B. cereus, B. alvei and B. aneurinolyticus, and found TGase activity related to sporulation. TGase activity of Bacillus subtilis was detected in lysozyme-treated sporulatinging cells during late sporulation, but not in cells without lysozyme treatment or the supernatant of the culture broth. TGase was found to be localized on spores. TGase was preliminarily purified by gel filtration chromatog. for characterization. Its activity was eluted in the fractions indicating a mol. wt. of approx. 23 kDa. TGase could cross-link and polymerize a certain protein. The enzyme was strongly suggested to form .epsilon.-(.gamma.-glutamyl)lysine bonds, which were detected in the spore coat proteins of B. subtilis. The activity was Ca2+-independent like the TGases derived from Streptoverticillium or some

plants. It is suggested that TGase is expressed during sporulation and plays a role in the assembly of the spore coat proteins of the genus Bacillus.

L2 ANSWER 1552 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:325296 Document No. 129:27205 ***Transglutaminase*** Activity Correlates to the Chorion Hardening of Fish Eggs. Fukuda, Akinori; Kanzawa, Nobuyuki; Tamiya, Toru; Seguro, Katsuya; Ohtsuka, Tomoko; Tsuchiya, Takahide (Department of Chemistry Faculty of Science and Technology, Sophia University, Tokyo, 102, Japan). Journal of Agricultural and Food Chemistry, 46(6), 2151-2152 (English) 1998. CODEN: JAFCAU. ISSN: 0021-8561. Publisher: American Chemical Society.
AB The texture of fish eggs changes into a unique chewy texture, for example, caviar, during preservation in salt soln. In this work, the changes in fish eggs after preservation in salt soln. were investigated. After salt preservation, fish eggs stiffened, and an increase of .epsilon.-(.gamma.-glutamyl)lysine (GL) cross-linked products in the chorion fraction was obsd. ***Transglutaminase*** (TGase) also activated after salt preservation. Therefore, it can be hypothesized that the change of breaking strength after salt preservation was due to the increment of the GL cross-linked products, which was produced by the activation of TGase. Addnl., two kinds of TGase isoforms were localized in the chorion fraction of fish egg.

L2 ANSWER 1553 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:322144 Document No. 129:93489 Biochemical evidence that small proline-rich proteins and trichohyalin function in epithelia by modulation of the biomechanical properties of their cornified cell envelopes. Steinert, Peter M.; Kartasova, Tonja; Marekov, Lyuben N. (Lab. Skin Biology, NIAMS, National Inst. Health, Bethesda, MD, 20892-2752, USA). Journal of Biological Chemistry, 273(19), 11758-11769 (English) 1998. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.
AB The cornified cell envelope (CE) is a specialized structure involved in barrier function in stratified squamous epithelia, and is assembled by ***transglutaminase*** crosslinking of several proteins. Murine forestomach epithelium undergoes particularly rigorous mech. trauma, and these CEs contain the highest known content of small proline-rich proteins (SPRs). Sequencing analyses of these CEs revealed that SPRs function as cross-bridgers by joining other proteins by use of multiple adjacent glutamines and lysines on only the amino and C-termini and in functionally non-polar ways. Forestomach CEs also use trichohyalin as a novel cross-bridging protein. The authors performed math. modeling of amino acid compns. of the CEs of mouse and human epidermis of different body sites. Although the sum of loricrin + SPRs was conserved, the amt. of SPRs varied in relation to the presumed phys. requirements of the tissues. The authors' data suggest that SPRs could serve as modifiers of a composite CE material composed of mostly loricrin; the authors propose that increasing amts. of cross-bridging SPRs modify the structure of the CE, just as crosslinking proteins strengthen other types of tissues. In this way, different epithelia may use varying amts. of the cross-bridging SPRs to alter the biomech. properties of the tissue in accordance with specific phys. requirements and functions.

L2 ANSWER 1554 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:313425 Document No. 129:51616 Microbial ***transglutaminase*** -mediated synthesis of hapten-protein conjugates for immunoassays. Josten, Andre; Meusel, Markus; Spener, Freidrich (Institut fur Chemo- und Biosensorik, Munster, D-48149, Germany). Analytical Biochemistry, 258(2), 202-208 (English) 1998. CODEN: ANBCA2. ISSN: 0003-2697. Publisher: Academic Press.
AB Hapten-protein conjugates are essential in many immunochem. assays, in particular, in assays employing titrn. or competitive assay formats. By exploitation of the catalytic properties of the microbial ***transglutaminase*** from Streptoverticillium mobarense sp. (MTGase), i.e., acyl transfer between .gamma.-carboxamide groups and various primary amines, new techniques for the synthesis of hapten-protein conjugates were developed. This is demonstrated by two examples. The feasibility of MTGase for hapten-protein conjugate synthesis was studied by coupling the herbicide 2,4-dichlorophenoxyacetic acid (2,4-D) to casein. Different procedures for the synthesis and the immobilization of these 2,4-D-casein

conjugates were evaluated, comprising (i) a batch procedure, (ii) coupling of 2,4-D to an already immobilized layer of casein, and (iii) a method for simultaneous immobilization and conjugation. Kinetic studies revealed that conjugate formation in the batch procedure was almost complete after approx 2 h. By employing the conjugates in a competitive ELISA, detection limits as low as 0.05 .mu.g/L 2,4-D were reached. Using the approach with simultaneous immobilization and conjugation, the time for the whole assay could be reduced to only 2 h. Finally, to demonstrate the versatility of the enzymic synthesis of hapten-protein conjugates, an ELISA for 2,4,6-trinitrotoluene (TNT) detn. based on ***transglutaminase*** -synthesized conjugates was developed. In this assay, a detection limit as low as 0.04 .mu.g/l TNT was obtained.

L2 ANSWER 1555 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:303187 Document No. 129:78980 Activation of papillomavirus late gene transcription and genome amplification upon differentiation in semisolid medium is coincident with expression of involucrin and ***transglutaminase*** but not keratin-10. Ruesch, Margaret N.; Stubenrauch, Frank; Laimins, Laimonis A. (Department of Microbiology-Immunology, Northwestern University Medical School, Chicago, IL, 60611, USA). Journal of Virology, 72(6), 5016-5024 (English) 1998. CODEN: JOVIAM. ISSN: 0022-538X. Publisher: American Society for Microbiology.

AB The life cycle of the papillomaviruses is closely linked to host cell differentiation, as demonstrated by the fact that amplification of viral DNA and transcription of late genes occur only in the suprabasal cells of a differentiated epithelium. Previous studies examg. the pathogenesis of papillomavirus infections have relied on the use of organotypic raft cultures or lesions from patients to examine these differentiation-dependent viral activities. In this study, we used a simple system for epithelial differentiation to study human papillomavirus (HPV) late functions. We demonstrate that the suspension of HPV-infected keratinocytes in semisolid medium contg. 1.6% methylcellulose for 24 h was sufficient for the activation of the late promoter, transcription of late genes, and amplification of viral DNA. These activities were shown to be linked to and coincide with cellular differentiation. Expression of the late protein E1.cxa.E4 and amplification of viral DNA were detected in the identical set of cells after suspension in methylcellulose. This technique was also used to analyze the differentiation properties of the cells which expressed the late protein E1.cxa.E4. While induction of the spinous layer markers involucrin and ***transglutaminase*** was compatible with late promoter induction, expression of the differentiation-specific keratin-10 was shown not to be required for HPV late functions. Interestingly, while the majority of normal human keratinocytes induced filaggrin expression by 24 h, this marker of the granular layer was induced in a smaller subset of HPV type 31 (HPV-31)-pos. cells at this time point. The HPV-31-pos. cells which expressed filaggrin did not induce the late protein E1.cxa.E4. Use of the methylcellulose system to induce epithelial differentiation coupled with the ability to perform a genetic anal. of HPV functions by using transfection of cloned viral DNA will facilitate the study of the regulation of the papillomavirus life cycle.

L2 ANSWER 1556 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:294822 Document No. 129:27219 Dimerization site of carp myosin heavy chains by the endogenous ***transglutaminase*** . Seki, Nobuo; Nakahara, Chiaki; Takeda, Hirofumi; Maruyama, Nobuyuki; Nozawa, Hisanori (Laboratory of Food Biochemistry, Faculty of Fisheries, Hokkaido University, Hakodate, Hokkaido, 041-8611, Japan). Fisheries Science, 64(2), 314-319 (English) 1998. CODEN: FSCIEH. ISSN: 0919-9268. Publisher: Japanese Society of Fisheries Science.

AB Dimerization of carp myosin heavy chains at the initial stage of endogenous ***transglutaminase*** (TGase)-catalyzed crosslinking was investigated under the similar condition to that of setting in fish meat gelation, with 0.5 M NaCl and 5 mM CaCl2 at pH 7.0 and 25.degree.C. Gel filtration chromatog. and SDS-PAGE analyses showed that the enzymic dimerization occurred intramolecularly between the heavy chains, independent of the thermal aggregation and a decrease in Ca-ATPase activity of myosin mols., but myosin light chains were not cross-linked. The heavy chains were preferentially cross-linked in rod portion than in sub-fragment-1. Monodansylcadaverine (MDC) inhibited completely the

dimerization and was incorporated into myosin heavy chains. Chymotryptic digestion of the MDC-labeled myosin revealed that the labeled site was on the rod and heavy meromyosin (HMM) portions, but not on sub-fragment-1 or light meromyosin portions. Further chymotryptic digestion of MDC-labeled heavy meromyosin produced MDC-labeled sub-fragment-2 (S2). All these results indicated the enzymic dimerization site being located on S2 heavy chain portions of myosin mol.

L2 ANSWER 1557 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:294394 Document No. 129:27057 Fed-batch fermentation dealing with nitrogen limitation in microbial ***transglutaminase*** production by Streptoverticillium mobaraense. Zhu, Y.; Rinzema, A.; Tramper, J.; De Bruin, E.; Bol, J. (Industrial Microbiology Division, Department of Bioprocess Technology, TNO Nutrition and Food Research Institute, Zeist, 3700 AJ, Neth.). Applied Microbiology and Biotechnology, 49(3), 251-257 (English) 1998. CODEN: AMBIDG. ISSN: 0175-7598. Publisher: Springer-Verlag.
AB In the later stages of a batch fermn. for microbial ***transglutaminase*** prodn. by Streptoverticillium mobaraense, the availability of a nitrogen source accessible to the microorganism becomes crit. Fed-batch fermn. is investigated with the aim of avoiding this substrate limitation. When peptone is used as a nitrogen source in the feed, no significant improvement of growth and ***transglutaminase*** prodn. is obsd. This is probably due to crosslinking of the nitrogen source by the ***transglutaminase*** produced. Using an inorg. nitrogen source alone does not give satisfactory growth and prodn. A fed-batch fermn. method has thus been developed to deal with this problem. In the batch phase of the fermn., an initial medium contg. peptone, designed on the basis of the stoichiometric requirements of the microorganism, is used to ensure optimal growth. In the feeding phase, ammonium sulfate is used instead to avoid the crosslinking effect. The feed compn., mainly the amt. of nitrogen and carbon source, is also based on the stoichiometric requirements of the organism, taking into account the replacement of peptone by ammonium sulfate. By using this fed-batch fermn. technique, cell-mass dry wt. and ***transglutaminase*** prodn. could be increased by 33% and 80% resp., compared to those in a batch fermn.

L2 ANSWER 1558 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:289203 Document No. 129:27170 Properties of films produced by crosslinking whey proteins and 11S globulin using ***transglutaminase*** . Yildirim, M.; Hettiarachchy, N. S. (Dept. of Food Science, Univ. of Arkansas, Fayetteville, AR, 72704, USA). Journal of Food Science, 63(2), 248-252 (English) 1998. CODEN: JFDSAZ. ISSN: 0022-1147. Publisher: Institute of Food Technologists.
AB ***Transglutaminase*** (TG) was used to produce films from whey protein isolate, soybean 11S globulin and a mixt. of the two (1:1, wt/wt). Soly. of TG cross-linked films was lower than that of control films at pH 3, 4, 6 and 8. Soly. of control films in 6.6M urea and in 10% SDS was higher than that of TG cross-linked films. Hydrolysis of control and TG cross-linked films by trypsin and .alpha.-chymotrypsin was similar after 24h incubation. Mean thickness of films ranged from 69 to 77 .mu.m and there were no differences among thicknesses. Av. tensile strength values of TG cross-linked films were two times greater than those of the homologous controls.

L2 ANSWER 1559 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:282259 Document No. 129:902 Identification of a distinct molecular mass G.alpha.h (***transglutaminase*** II) coupled to .alpha.1-adrenoceptor in mouse heart. Han, Kee Jung; Park, Hyunguk; Yoo, Soon Moon; Baek, Soo Heum; Uhm, Dae-Yong; Lee, Hee Sung; Yun, Hye-Young; Kwon, Nyoun Soo; Baek, Kwang Jin (Dep. Biochem., Coll. Med., Chung-Ang Univ., Seoul, 156-756, S. Korea). Life Sciences, 62(19), 1809-1816 (English) 1998. CODEN: LIFSAK. ISSN: 0024-3205. Publisher: Elsevier Science Inc..
AB The authors' previous studies on .alpha.1-adrenoceptor signaling suggested that G.alpha.h family is a signal mediator in different species. To elucidate the species-specificity of G.alpha.h family in mol. mass, the authors used the solubilized membranes from mouse heart and the ternary complex prepns. contg. .alpha.1-agonist/receptor/G-protein. Binding of [35S]GTP.gamma.S and the intensity of the [.alpha.-32P]GTP photoaffinity labeled protein resulting from activation of the .alpha.1-adrenoceptor

were significantly attenuated by the antagonist, phentolamine. The mol. mass of the specific GTP-binding protein was .apprx.72-kDa; homologous with G.alpha.h (***transglutaminase*** II) family. Furthermore, immunol. cross-reactivity of ternary complex from mouse heart and purified G.alpha.h from rat, guinea pig, and bovine using anti-G.alpha.h7 antibody showed that their mol. masses were distinctly different and .apprx.72-kDa G.alpha.h from mouse heart was the lowest mol. mass. Consistent with these observations, in co-immunopptn. and co-immunoadsorption of the .alpha.1-adrenoceptor in the ternary complex prepn. by anti-G.alpha.h7 antibody, the G.alpha.h family protein tightly couples to .alpha.1-adrenoceptor. These results demonstrate the species-specifically of G.alpha.h family in mol. mass, esp. the lowest mol. mass in mouse.

L2 ANSWER 1560 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:279637 Document No. 129:66400 In vitro neurotoxicity of amyloid .beta.-peptide cross-linked by ***transglutaminase*** . Ikura, Koji; Takahata, Kyoya; Shinagawa, Rika; Masuda, Seiji; Sasaki, Ryuzo (Department of Chemistry and Materials Technology, Kyoto Institute of Technology, Kyoto, 606, Japan). Cytotechnology, 23(1-3), 77-85 (English) 1997. CODEN: CYTOER. ISSN: 0920-9069. Publisher: Kluwer Academic Publishers.
AB ***Transglutaminase*** catalyzes the intermol. crosslinking of peptides between Gln and Lys residues, forming an .epsilon.-(.gamma.-glutamyl) lysine bond. Amyloid .beta.-peptide, a major constituent of the deposits in Alzheimer's disease, contains Lys16, Lys28, and Gln15 which may act as substrates of ***transglutaminase*** .
Transglutaminase treatment of amyloid .beta.-peptide (1-28) and amyloid .beta.-peptide (1-40) yielded cross-linked oligomers.
Transglutaminase -treated A.beta. retarded neurite extension of PC12 cells, and rat cultured neurons of hippocampus and septum, brain areas severely affected by Alzheimer disease, and subsequently caused cell death, whereas the ***transglutaminase*** -untreated counterparts did not show harmful effects. The ***transglutaminase*** -catalyzed oligomers of amyloid .beta.-peptide and their neurotoxicity may be involved in two characteristics in Alzheimer's disease, neuronal degeneration and formation of the insol. deposits.

L2 ANSWER 1561 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:276257 Document No. 129:15074 Alteration of enzymic activities implicating neuronal degeneration in the spinal cord of the motor neuron degeneration mouse during postnatal development. Fujita, K.; Shibayama, K.; Yamauchi, M.; Kato, T.; Ando, M.; Takahashi, H.; Iritani, K.; Yoshimoto, N.; Nagata, Y. (Dep. Physiol., Sch. Medicine, Fujita Health Univ., Toyoake, 470-11, Japan). Neurochemical Research, 23(4), 557-562 (English) 1998. CODEN: NEREDZ. ISSN: 0364-3190. Publisher: Plenum Publishing Corp..
AB Oxidative stress is suggested as a significant causative factor for pathogenesis of neuronal degeneration on spinal cord of human ALS. We measured some enzymic activities implicating neuronal degeneration process, such as cytochrome c oxidase (CO), superoxide dismutase (SOD), and tranglutaminase (TG) in spinal cord of an animal model of ALS, motor neuron generation (Mnd) mouse, a mutant that exhibits progressive degeneration of lower spinal neurons during developmental growth, and compared them with age-matched control C57BL/6. CO activity in Mnd spinal cord decreased during early postnatal while SOD activity reduced in late stage. In Mnd tissue, TG activity in lumbar cord was increasing during early stage, but tended to decline in later period gradually. These biochem. alterations became evident prior to the appearance of clin. motor
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ocument No. 128:294040 Development of enzymes for food applications. Heldt-Hansen, Hans Peter (Novo Nordisk A/S, Bagsvaed, Den.). VTT Symposium, 177(Biotechnology in the Food Chain), 45-55 (English) 1997. CODEN: VTTSE9. ISSN: 0357-9387. Publisher: Valtion Teknillinen Tutkimuskeskus.
AB A review with 13 refs. Several examples are given on the trends in the development of food enzymes and on food enzyme applications. Most of the examples are based on or are facilitated by the use of genetic engineering and/or protein engineering. The opportunities of having functional, pure pectinolytic enzymes are illustrated by examples of the use of pectin esterase for ketchup prodn. and rhamnogalacturonan contg. enzyme prepns. for prodn. of cloud stable apple juice. The use of a functional, pure xylanase is exemplified by Shearzyme for wheat sepn. The importance of

protein engineering is illustrated by the development of a calcium independent liquefaction amylase. Recent developments with ***transglutaminase*** and specific proteases for protein contg. food, are exemplified by application of ***transglutaminase*** for low fat yoghurt and a glutamic acid specific protease to improve the viscosifying properties of proteins. Finally, recent advances for the baking industry are exemplified by application of laccase.

L2 ANSWER 1568 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:246144 Document No. 129:49977 Keratinocyte differentiation is stimulated by activators of the nuclear hormone receptor PPAR.alpha.. Hanley, Karen; Jiang, Yan; He, Shan Shan; Friedman, Mark; Elias, Peter M.; Bikle, Daniel D.; Williams, Mary L.; Feingold, Kenneth R. (Department of Dermatology, University of California, San Francisco, CA, USA). Journal of Investigative Dermatology, 110(4), 368-375 (English) 1998. CODEN: JIDEAE. ISSN: 0022-202X. Publisher: Blackwell Science, Inc..
AB Peroxisome proliferator activated receptors (PPAR) belong to the superfamily of nuclear hormone receptors that heterodimerize with the retinoid X receptor and regulate transcription of several genes involved in lipid metab. and adipocyte differentiation. Because of the role of 1,25-dihydroxyvitamin D3 and retinoic acid working through similar receptors (the vitamin D receptor and retinoic acid receptor, resp.) on keratinocyte differentiation, the authors have examd. the effects of activators of PPAR.alpha. on keratinocyte differentiation. The rate of cornified envelope formation was increased 3-fold in keratinocytes maintained in low calcium (0.03 mM) and incubated in the presence of clofibric acid, a potent PPAR.alpha. activator. Involucrin, a cornified envelope precursor, and the crosslinking enzyme ***transglutaminase*** , were increased at both the message level (2-7-fold) and the protein level (4-12-fold) by clofibric acid. Furthermore, physiol. doses of the fatty acids oleic acid, linoleic acid, and eicosatetraynoic acid, which are also activators of PPAR.alpha., also induced involucrin and ***transglutaminase*** protein and mRNA. In contrast, the PPAR.gamma. ligand prostaglandin J2 had no effect on protein or mRNA levels of involucrin or ***transglutaminase*** . Levels of involucrin and ***transglutaminase*** mRNA and protein were induced by clofibric acid in keratinocytes incubated in 1.2 mM calcium, a concn. which by itself induces keratinocyte differentiation. Finally, PPAR.alpha. activators inhibit DNA synthesis. This study demonstrates that PPAR.alpha. activators, including putative endogenous ligands such as fatty acids, induce differentiation and inhibit proliferation in keratinocytes, and suggests a regulatory role for the PPAR.alpha. in epidermal homeostasis.

L2 ANSWER 1569 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:246135 Document No. 129:39220 A potential role for ceramide in the regulation of mouse epidermal keratinocyte proliferation and differentiation. Jung, Eunmi; Griner, Richard D.; Mann-Blakeney, Rashawn; Bollag, Wendy Bollinger (Institute of Molecular Medicine and Genetics, Program in Cell Signaling, Medical College of Georgia, Augusta, GA, 30912-2630, USA). Journal of Investigative Dermatology, 110(4), 318-323 (English) 1998. CODEN: JIDEAE. ISSN: 0022-202X. Publisher: Blackwell Science, Inc..
AB We have previously detd. that sustained phospholipase D (PLD) activation is assocd. with differentiation induction in primary mouse epidermal keratinocytes. We therefore investigated the effect of two bacterial PLD on keratinocyte proliferation and differentiation. We found that Streptomyces sp. PLD was much less potent at inhibiting proliferation than S. chromofuscus PLD, with a half-maximal inhibitory concn. of 0.05 vs. less than 0.001 IU per mL for S. chromofuscus PLD. Similarly, S. chromofuscus PLD stimulated ***transglutaminase*** activity more effectively and potently than S. sp. PLD. When we examd. the formation of products by the two PLD, we found that the S. sp. PLD showed higher activity at all concns. Whereas the PLD from S. sp. is relatively inactive on sphingomyelin, S. chromofuscus PLD is known to hydrolyze both glycerophospholipids and sphingomyelin. Based on recent data indicating a role for ceramide in regulating cell growth and differentiation, we hypothesized that the ability of S. chromofuscus PLD to hydrolyze sphingomyelin might underlie its greater potency. Therefore, we examd. the effect of exogenous sphingomyelinase and synthetic ceramides on DNA synthesis. We found that sphingomyelinase exhibited a potent concn.-dependent effect on [3H]thymidine incorporation, much like S.

chromofuscus PLD. Synthetic cell-permeable ceramides (C6- and C2-ceramide) also concn. dependently inhibited DNA synthesis, with a half-maximal inhibitory concn. of .apprxeq.12 .mu.M. Finally, we obtained evidence suggesting that ceramide is generated in response to a physiol. relevant agent, because tumor necrosis factor-.alpha., a known effector of sphingomyelin turnover in other systems and a cytokine that is produced and released by keratinocytes, increased ceramide levels in primary epidermal keratinocytes.

L2 ANSWER 1570 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:245711 Document No. 129:52687 Cell death in neuroblastoma tumors. Melino, Gerry; Annicchiarico-Petruzzelli, Margherita; Lovat, Penny; Farrace, Maria Grazia; Piredda, Lucia; Piacentini, Mauro (University of L'Aquila and IDI-IRCCS Biochemistry Lab, University of Rome "Tor Vergata", Rome, Italy). Apoptosis and Cancer, 222-244. Editor(s): Martin, Seamus J. Karger Landes Systems: Basel, Switz. (English) 1997. CODEN: 65WRAY.
AB A review with 101 refs., including sections entitled neuroblastoma: characteristic and prognostic features, role of insulin-like growth factors in the survival of neuroblastoma, apoptosis in neuroblastomas, retinoic acid induces apoptosis in human neuroblastoma cell lines, post-translational regulation of "tissue" ***transglutaminase*** : a hypothesis for the regulation of apoptosis, and clin. perspectives.

L2 ANSWER 1571 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:241736 Document No. 129:728 Induction of tissue ***transglutaminase*** by dexamethasone: its correlation to receptor number and ***transglutaminase*** -mediated cell death in a series of malignant hamster fibrosarcomas. Johnson, Timothy S.; Scholfield, Claire I.; Parry, James; Griffin, Martin (Department of Life Sciences, Nottingham Trent University, Nottingham, NG11 8NS, UK). Biochemical Journal, 331(1), 105-112 (English) 1998. CODEN: BIJOAK. ISSN: 0264-6021. Publisher: Portland Press Ltd..
AB Treatment of the hamster fibrosarcoma cell lines (Met B, D and E) and BHK-21 hamster fibroblast cells with the glucocorticoid dexamethasone led to a powerful dose-dependent mRNA-synthesis-dependent increase in ***transglutaminase*** activity, which can be correlated with dexamethasone-responsive receptor nos. in each cell line. Increasing the no. of dexamethasone-responsive receptors by transfection of cells with the HG1 glucocorticoid receptor protein caused an increase in ***transglutaminase*** activity that was proportional to the level of transfected receptor. In all expts. the levels of the tissue ***transglutaminase*** -mediated detergent-insol. bodies was found to be comparable with increases in ***transglutaminase*** activity. Despite an increase in detergent-insol. body formation, an increase in apoptosis as measured by DNA fragmentation was not found. Incubation of cells with the non-toxic competitive ***transglutaminase*** substrate fluorescein cadaverine led to the incorporation of this fluorescent amine into cellular proteins when cells were damaged after exposure to trypsin during cell passage. These crosslinked proteins contg. fluorescein cadaverine were shown to be present in the detergent-insol. bodies, indicating that the origin of these bodies is via activation of tissue ***transglutaminase*** after cell damage by trypsinization rather than apoptosis per se, since Met B cells expressing the bcl-2 cDNA were not protected from detergent-insol. body formation. The authors describe a novel mechanism of cell death related to tissue ***transglutaminase*** expression and cell damage.

L2 ANSWER 1572 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:240032 Document No. 128:216316 TNF-.alpha. modulates expression of the tissue ***transglutaminase*** gene in liver cells. Kuncio, Gerald S.; Tsyganskaya, Mariya; Zhu, Jianling; Liu, Shu-Ling; nagy, Laszlo; Thomazy, Vilmos; Davies, Peter J. A.; Zern, Mark A. (Dep. Med. Dep. Pathol. Anatomy, Cell Biol., Thomas Jefferson Univ., Philadelphia, PA, 19107, USA). American Journal of Physiology, 274(2, Pt. 1), G240-G245 (English) 1998. CODEN: AJPHAP. ISSN: 0002-9513. Publisher: American Physiological Society.
AB One of several postulated roles for tissue ***transglutaminase*** (tTG) is the stabilization and assembly of extracellular matrix via peptide crosslinking. We previously detd. that tTG activity increased in an animal model of hepatic fibrogenesis and in human liver disease. To further study the role of tTG in liver disease, we initiated

investigations into the effect of a proinflammatory mediator, tumor necrosis factor (TNF)-.alpha., on tTG activity in cultured liver cells. Treatment of human Hep G2 cells with 1 ng/mL TNF-.alpha. increased [14C]putrescine crosslinking to cellular proteins. An increase in tTG mRNA content was obsd. 1 h after addn. of TNF-.alpha., and levels of tTG mRNA remained elevated after 24 h. Hep G2 cells, transiently transfected with a luciferase reporter contg. 1.67 kb of the human tTG promoter, showed an increase in reporter activity after addn. of TNF-.alpha.. Gel shift expts. using nuclear exts. from TNF-.alpha.-treated cells and oligonucleotides contg. the tTG nuclear factor (NF)-.kappa.B motif revealed increased binding, concordant with mRNA data. Transient transfections with a truncated reporter construct lacking the tTG NF-.kappa.B sequence showed an attenuated response to TNF-.alpha. treatment. Similar responses were seen in stably transfected HeLa cells. Primary hepatocytes isolated from a transgenic mouse line contg. the mouse tTG promoter driving the .beta.-galactosidase reporter, show similar time-dependent increases in promoter activity when treated with TNF-.alpha.. Furthermore, Hep G2 cells are incapable of upmodulating tTG promoter reporter activity in the presence of TNF-.alpha. when those cells overexpress a transdominant, neg. mutant NF-.kappa.B subunit. Because TNF-.alpha. expression is upregulated in hepatic inflammation, the data suggest TNF-.alpha.-mediated increases in tTG expression may play an important role in the process of hepatic fibrogenesis.

L2 ANSWER 1573 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:230022 Document No. 129:14729 Characterization of the reciprocal binding sites on human .alpha.-thrombin and factor XIII A-chain. Achyuthan, Komandoor E. (ZymeTx Inc, Oklahoma City, OK, 73104, USA). Molecular and Cellular Biochemistry, 178(1&2), 289-297 (English) 1998. CODEN: MCBIB8. ISSN: 0300-8177. Publisher: Kluwer Academic Publishers.

AB Soln.- and solid-phase techniques were used to probe Factor XIII A-chain-.alpha.-thrombin interactions. .alpha.-Thrombin activated Factor XIII more efficiently (Km = 0.83 .+-. 0.08 x 10-7 M; V/K = 14.90 .+-. 3.20 x 10-3 min-1) than .beta.-thrombin (Km = 6.14 .+-. 1.26 x 10-7 M; V/K = 3.30 .+-. 1.00 x 10-3 min-1) or .gamma.-thrombin (Km = 6.25 .+-. 1.15 x 10-7 M; V/K= 3.00 .+-. 0.80 x 10-3 min-1). Immobilized FPR-.alpha.-thrombin bound plasma Factor XIII (Kd = 0.17 .+-. 0.04 x 10-7 M) > Factor XIIIa (Kd = 0.69 .+-. 0.18 x 10-7 M) > liver ***transglutaminase*** (Kd = 4.73 .+-. 1.01 x 10-7 M) > Factor XIII A-chain (Kd = 49.00 .+-. 9.40 x 10-7 M). FPR-.alpha.-thrombin and .alpha.-thrombin also bound immobilized Factor XIII A-chain with affinities inversely related to protease activity: maximal binding at 1.36 x 10-7 M and 13.6 x 10-7 M, resp. Plasma Factor XIII, ***transglutaminase*** , and dithiothreitol competitively inhibited Factor XIII A-chain binding to FPR-.alpha.-thrombin: IC50 = 1.0 x 10-7 M, 3.0 x 10-6 M and 1.52 x 10-4 M, resp. ***Transglutaminase*** also inhibited Factor XIII binding to .alpha.-thrombin (IC50 = 2.0 x 10-6 M). Thrombin-binding site was localized to G38-M731 fragment of Factor XIIT A-chain, probably within homologous regions (N72-A493) of ***transglutaminase*** R320-E579 of .alpha.-thrombin was Factor XIII A-chain binding site. Intra-B-chain disulfides in .alpha.-thrombin were essential for binding but not catalytic H363 or residues R382-N394 and R443-G475. These studies propose a structural basis for Factor XIII activation, provide a regulatory mechanism for Factor XIIIa generation, and could eventually help in the development of new structure-based inhibitors of thrombin and Factor XIIIa.

L2 ANSWER 1574 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:227598 Document No. 128:268978 Tissue ***transglutaminase*** is not increased during apoptosis of HT-1080 human fibrosarcoma cells. Lim, S. D.; Bae, S. I.; Kim, I. G.; Park, S. C.; Chung, S. I.; Nomizu, M.; Kleinman, H. K.; Kim, W. H. (Department Pathology, College Medicine, Seoul National University, Seoul, 110, S. Korea). Experimental and Toxicologic Pathology, 50(1), 79-82 (English) 1998. CODEN: ETPAEK. ISSN: 0940-2993. Publisher: Gustav Fischer Verlag.

AB The involvement of tissue ***transglutaminase*** (tTGase) in cell apoptosis was tested. Treating with different concns. of the multimeric peptide Ac-Y16, consisting of 16 Tyr-Ile-Gly-Ser-Arg sequences, apoptosis of HT-1080 fibrosarcoma cells was increased in a dose-dependent manner. When assayed by incorporation of [14C]putrescine into succinylated casein, total TGase activity was decreased in parallel with the change in no. of

attached cells. TTGase protein level was not changed when equal amts. of the protein were applied. Inducing apoptosis by coating the tissue culture plates with non-adhesive polyhydroxyethyl methacrylate, tTGase protein level was also not changed.

L2 ANSWER 1575 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:226195 Document No. 128:280528 In vitro and rapid in situ ***transglutaminase*** assays for congenital ichthyoses - a comparative study. Hohl, Daniel; Aeschlimann, Daniel; Huber, Marcel (Department of Dermatology, CHUV/DHURDV, Lausanne, CH-1011, Switz.). Journal of Investigative Dermatology, 110(3), 268-271 (English) 1998. CODEN: JIDEAE. ISSN: 0022-202X. Publisher: Blackwell Science, Inc..
AB Autosomal recessive congenital ichthyoses are a heterogeneous group of disfiguring skin diseases. They are generally characterized by variable scaling and erythroderma, and patients are frequently collodion babies at birth. Autosomal recessive congenital ichthyoses are represented in 25 of the 50 families by a defective keratinocyte ***transglutaminase*** (TGK). Pathogenic classification is difficult to assess on clin. grounds for autosomal recessive congenital ichthyoses and impossible for collodion babies. Thus, the authors established a rapid TGK assay in situ on frozen skin sections using incorporation of dansyl-cadaverin to assess ***transglutaminase*** (TG) activity in combination with immunohistochem. for TGK protein. Results were compared with TG activity levels measured in cultured differentiating keratinocytes. Sixteen of 26 patients, including a collodion baby, had strongly diminished TG activity in the cell periphery of differentiating keratinocytes and membrane-bound TG activities in vitro, ranging from 2.2 to 281.3 pmol per h mg. Nine of 26 patients, including a collodion baby, showed strong TG activity in the cell periphery of differentiating keratinocytes in situ and membrane-bound TG activities in vitro ranged from 1519 to 10917 pmol per h mg. In one case, TG assay in situ was ambiguous; however, membranous TG activity in vitro was very low at 76.9 pmol/h .times. mg. The results demonstrate an excellent correlation of TG assays in vitro and in situ. The authors present a novel test with prognostic value for the collodion baby phenotype. This assay allows rapid pathogenic classification of autosomal recessive congenital ichthyoses with only one caveat that in rare ambiguous cases it might be necessary for proper classification to assess membrane-bound TG activity in vitro.

L2 ANSWER 1576 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:225134 Document No. 129:3545 ***Transglutaminase*** action imitates Huntington's disease: selective polymerization of huntingtin containing expanded polyglutamine. Kahlem, Pascal; Green, Howard; Djian, Philippe (Centre National de la Recherche Scientifique, Centre de Recherche sur l'Endocrinologie Moleculaire et le Developpement, Meudon-Bellevue, 92190, Fr.). Molecular Cell, 1(4), 595-601 (English) 1998. CODEN: MOCEFL. ISSN: 1097-2765. Publisher: Cell Press.
AB Different proteins bearing polyglutamine of excessive length are lethal to neurons and cause human disease of the central nervous system. In parts of the brain affected by Huntington's disease, the amt. of the huntingtin with expanded polyglutamine is reduced and there appear huntingtin-contg. polymers of larger mol. wt. We show here that huntingtin is a substrate of ***transglutaminase*** in vitro and that the rate const. of the reaction increases with length of the polyglutamine over a range of an order of magnitude. As a result, huntingtin with expanded polyglutamine is preferentially incorporated into polymers. Both disappearance of the huntingtin with expanded polyglutamine and its replacement by polymeric forms are prevented by inhibitors of ***transglutaminase*** . The effect of ***transglutaminase*** therefore duplicates the changes in the affected parts of the brain.

L2 ANSWER 1577 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:223615 Document No. 129:13546 The intermediate filament protein, vimentin, in the lens is a target for crosslinking by ***transglutaminase*** . Clement, Sophie; Velasco, Pauline T.; Murthy, S. N. Prasanna; Wilson, James H.; Lukas, Thomas H.; Goldman, Robert D.; Lorand, Laszlo (Departments of Cell and Molecular Biology, Northwestern University Medical School, Chicago, IL, 60611, USA). Journal of Biological Chemistry, 273(13), 7604-7609 (English) 1998. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB Mere addn. of Ca2+ to a lens cortical homogenate (bovine) generates a series of products composed of a variety of high mol. wt. vimentin species. The Ca2+ -induced crosslinking of this cytoskeletal element seems to be mediated by the intrinsic ***transglutaminase*** of lens, because the reaction could be blocked at the monomeric state of vimentin by the inclusion of small synthetic substrates of the enzyme, dansylcadaverine or dansyl-.epsilon.-aminocaproyl-Gln-Gln-Ile-Val. These compds. are known to compete against the Gln or Lys functionalities of proteins that would participate in forming the N.epsilon.(.gamma.-glutamyl)lysine protein-to-protein crosslinks. The cytosolic ***transglutaminase*** -catalyzed reactions could be reproduced with purified bovine lens vimentin and also with recombinant human vimentin prepns. Employing the latter system, the authors have titrated the ***transglutaminase*** -reactive sites of vimentin and, by sequencing the dansyl-tracer-labeled segments of the protein, the authors have shown that residues Gln453 and Gln460 served as acceptor functionalities and Lys97, Lys104, Lys294, and Lys439 as electron donor functionalities in vimentin. The ***transglutaminase*** -dependent reaction of this intermediate filament protein might influence the shape and plasticity of the fiber cells, and the enzyme-catalyzed crosslinking of vimentin, in conjunction with other lens constituents, may contribute to the process of cataract formation.

L2 ANSWER 1578 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:222449 Document No. 129:26671 ***Transglutaminase*** dependent generation of monocyte chemotactic factor. Nishiura, Hiroshi; Shibuya, Yoko; Yamamoto, Tetsuro (Division of Molecular Pathology, Graduate School Medical Sciences, Department of Laboratory Medicine, School of Medicine, Kumamoto University, Kumamoto, 860, Japan). Biomedical and Health Research, 15(Medical Aspects of Proteases and Protease Inhibitors), 173-182 (English) 1997. CODEN: BIHREN. ISSN: 0929-6743. Publisher: IOS Press.
AB A review and discussion with 17 refs. In the exts. of rheumatoid arthritis synovial lesions, a novel monocyte chemotactic factor was found out. This factor was a homodimer of S19 ribosomal protein which was cross-linked by a ***transglutaminase*** -catalyzed reaction. The ribosomal component acquires the new biol. function by dimerization. The chemotactic activity of this dimer was inhibited by antibodies against the complement-derived chemotactic factor, C5a or against C5a receptor, although there is no sequential homol. between S19 ribosomal protein and C5a. The S19 ribosomal protein dimer seemed to attract monocytes by a kind of mol. mimicry.

L2 ANSWER 1579 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:219219 Document No. 129:3364 Evidence for the involvement of both retinoic acid receptor- and retinoic X receptor-dependent signaling pathways in the induction of tissue ***transglutaminase*** and apoptosis in the human myeloma cell line RPMI 8226. Joseph, Bertrand; Lefebvre, Olga; Mereau-Richard, Claude; Danze, Pierre-Marie; Belin-Plancot, Marie-Therese; Formstecher, Pierre (INSERM U459 "Signaux, Recepteurs et Differenciation Cellulaire", Faculte de Medecine, Lille, 59045, Fr.). Blood, 91(7), 2423-2432 (English) 1998. CODEN: BLOOAW. ISSN: 0006-4971. Publisher: W. B. Saunders Co..
AB In this study, the authors show that both all-trans-retinoic acid (atRA) and 9-cis-retinoic acid (9-cis-RA) are potent inducers of tissue ***transglutaminase*** (TGase II), an enzyme involved in apoptosis, at the level of both enzyme activity and mRNA in the human myeloma cell line RPMI 8226. RPMI 8226 cells were shown to express mRNAs for all the retinoid receptors subtypes, ie, RAR.alpha., RAR.beta., RAR.gamma., RXR.alpha., RXR.beta., and RXR.gamma.. To identify which of these receptors are involved in regulating TGase II expression, several receptor-selective synthetic retinoids were used. Neither CD367, a very potent retinoid that selectively binds and activates receptors of the RAR family, nor CD2425, an RXR-selective agonist, induced TGase II when used alone. However, combination of CD367 and CD2425 resulted in nearly full induction of the enzyme. Moreover, when used in combination with atRA, CD367 partially inhibited the atRA-dependent induction of TGase II, whereas CD2425 enhanced it. The effects of Am 580, CD417, and CD437, three synthetic retinoids selective for the RARs subtypes RAR.alpha., RAR.beta., and RAR.gamma., resp., were also investigated. None of these compds. was able to induce TGase II when used alone; however, the

combination of each of them with CD2425 resulted in strong induction of the enzyme activity, reaching 30% to 50% of the values obtained in the presence of retinoic acid and suggesting functional redundancy between the RAR subtypes. Finally, treatment with atRA or the combination of CD367 and CD2425, but not with CD367 or CD2425 alone, was also shown to trigger apoptosis in RPMI 8226 cells, with prominent accumulation of TGase II immunoreactivity in apoptotic cells. Taken together these data suggest that the induction of TGase II expression and apoptosis in the RPMI 8226 myeloma cell line required ligand-dependent activation of both the RAR and RXR receptors.

L2 ANSWER 1580 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:213163 Document No. 128:293312 Epidermal differentiation and squamous metaplasia: from stem cell to cell death. Jetten, Anton M.; Harvat, Beth L. (Cell Biology Section, Laboratory of Pulmonary Pathobiology, National Institute of Environmental Health Sciences, National Institutes of Health, Research Triangle Park, NC, 27709, USA). Journal of Dermatology, 24(11), 711-725 (English) 1997. CODEN: JDMYAG. ISSN: 0385-2407. Publisher: Japanese Dermatological Association.
AB A review, with 111 refs. Epidermal differentiation is a multi-step process defined by a cascade of interrelated changes in the expression of growth-regulatory and differentiation-specific genes. Irreversible growth arrest is an early event in epidermal differentiation which occurs when cells transit from the basal to the innermost suprabasal layer of the skin and begin to express squamous-specific genes. In culture, interferon .gamma., phorbol esters, confluence and growth in suspension are effective signals to induce irreversible growth arrest and differentiation. The induction of differentiation-specific genes occurs either concomitantly with or following growth arrest and is believed to be linked to the mol. events that control irreversible growth arrest. Such a link has been demonstrated in other cell systems undergoing terminal differentiation, such as myogenesis and adipogenesis. Genes encoding proteins involved in the formation of the crosslinked envelope are one set of squamous-specific genes which are induced in the suprabasal layers and include ***transglutaminase*** I and III, involucrin, loricrin and cornifins/small proline-rich proteins. Squamous-specific genes exhibit not only different patterns of tissue-specific expression but are also induced at different stages during differentiation, suggesting that transcription of individual genes is regulated by distinct mechanisms. The latter is supported by the identification of different sets of regulatory elements controlling the transcription of these genes. The importance of understanding both the mechanisms that regulate growth arrest and the differentiation program is emphasized by the assocn. found between specific skin diseases and genetic alterations in growth-regulatory genes as well as differentiation markers. In addn., studies into those mechanisms will provide insight into the control of squamous metaplasia and the development of squamous cell carcinomas.

L2 ANSWER 1581 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:210762 Document No. 128:270875 Preparation of modified physiologically active proteins and medicinal compositions containing the same. Takahara, Yoshiyuki; Sato, Haruya; Hayashi, Eiko; Yatagai, Masanobu; Suzuki, Manabu; Tabata, Tomoyuki; Ejima, Chieko (Ajinomoto Co., Inc., Japan; Takahara, Yoshiyuki; Sato, Haruya; Hayashi, Eiko; Yatagai, Masanobu; Suzuki, Manabu; Tabata, Tomoyuki; Ejima, Chieko). PCT Int. Appl. WO 9813381 A1 19980402, 65 pp. DESIGNATED STATES: W: CN, JP, US; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1997-JP3435 19970926. PRIORITY: JP 1996-273922 19960926.
GI

/ Structure 1 in file .gra /

AB Claimed are Modified physiol. active protein which can be produced by reacting a physiol. active protein having a mol. wt. falling within the range of from 1 x 103 to 2 x 105 and carrying at least one Gln residue serving as the substrate of ***transglutaminase*** with a branched ligand consisting of an amino acid deriv. having a lower binding affinity

to the asialoglycoprotein receptor located on hepatic parenchymal cells than that to asialoorsomucoid and carrying an amino group and a galactose (Gal) or N-acetylgalactosamine (GalNAc) group serving as the substrate of ***transglutaminase*** in the presence of a ***transglutaminase*** originating in a microorganism to thereby form an amide bond between the .gamma.-carboxamide group of the glutamate residue in the physiol. active protein and the terminal amino group in the branched ligand, and a process for producing the same. The branched galactose- or N-acetylgalactosamine-contg. diglutamine ligands (I; R = Q, Q1) (prepn. given) and physiol. active proteins such as interleukin-2 (IL-2) and interferon .alpha. (INF-.alpha.) are also claimed. Modification by above synthetic ligands allows physiol. active proteins to target and selectively accumulate in liver and also results in weak binding affinity of the proteins to asialoglycoprotein receptor and thus less intake of the protein into hepatic parenchymal cells, and furthermore alleviates side effects of the proteins by reducing transfer of the protein to other organs and blood. Thus, recombinant human IL-2 (rhIL-2) in a Tris hydrochloride buffer soln. was incubated with the ligand I (R = Q), abbreviated as (Gal)3, in the presence of ***transglutaminase*** to give (Gal)3-rhIL-2 which in vivo was accumulated in liver of mice 3.5-times greater than rhIL-2.

L2 ANSWER 1582 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:208886 Document No. 128:191796 Crosslinking of Whey Proteins by Enzymic Oxidation. Frgemand, Merete; Otte, Jeanette; Qvist, Karsten Bruun (Department of Dairy and Food Science, Royal Veterinary and Agricultural University, Frederiksberg, DK-1958, Den.). Journal of Agricultural and Food Chemistry, 46(4), 1326-1333 (English) 1998. CODEN: JAFCAU. ISSN: 0021-8561. Publisher: American Chemical Society.
AB The applicability of enzymic oxidn. for polymn. of whey proteins [in whey protein isolate (WPI)] has been investigated, using three different oxidoreductases with different specificities (microbial peroxidase, fungal laccase, and bovine plasma monoamine oxidase) to induce oxidn. All three enzymes were able to induce formation of oligomers and polymers of whey proteins under various conditions, but their modes of action seemed to diverge, as they affected the two main whey proteins .beta.-lactoglobulin and .alpha.-lactalbumin differently: for example, peroxidase (in the presence of hydrogen peroxide) mainly acted on .beta.-lactoglobulin, laccase (in the presence of chlorogenic acid) mainly worked on .alpha.-lactalbumin, and monoamine oxidase acted somewhat on both proteins. None of the oxidoreductases induced full polymn. of WPI, as opposed to crosslinking with microbial ***transglutaminase*** with a reductant present, which polymerizes the whey proteins fully. None of the oxidoreductases could induce gelling of WPI solns. with 10-20% protein.

L2 ANSWER 1583 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:208668 Document No. 128:229666 Breads containing unsaturated carboxylic acids and oxidase for microwave heating. Shiiha, Daisuke; Miki, Takafumi; Komikado, Masanori (Kao Corp., Japan). Jpn. Kokai Tokkyo Koho JP 10084846 A2 19980407 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-242860 19960913.
AB Title breads contain unsatd. carboxylic acids or their salts and oxidase. Roll dough contg. fumaric acid and glucose oxidase was baked, compressed, stored in a freezer, and heated with a microwave oven to show good texture, flavor, and vol. recovery.

L2 ANSWER 1584 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:200707 Document No. 128:268955 Differentiation markers in oral carcinoma cell lines and tumors. Arany, Istvan; Adler-Storthz, Karen; Chen, Zhuo; Tyring, Stephen K.; Brysk, Henry; Brysk, Miriam M. (Departments of Microbiology and Immunology, University of Texas Medical Branch, Galveston, TX, 77555, USA). Anticancer Research, 17(6D), 4607-4610 (English) 1997. CODEN: ANTRD4. ISSN: 0250-7005. Publisher: Anticancer Research.
AB Cell lines are useful as models if they retain the relevant characteristics of the tissue of origin. The authors compared two human squamous carcinoma cell lines derived from tumors of the tongue that vary in their extent of differentiation, with human biopsies of carcinomas of the tongue that were either poorly or well-differentiated. The mRNA levels of suprabasal cell proteins (keratin K13, involucrin, ***transglutaminase***) and of protein kinase C (PKC) isoenzymes were measured by RT-PCR. Apart from PKC.beta. and PKC.delta. (mostly expressed

by Langerhans cells and missing in culture), qual. similar patterns were found in vitro and in vivo. The more differentiated cells had expression levels moderately lower to higher than the normal controls. The poorly differentiated cells generally had substantially lower levels.

L2 ANSWER 1585 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:193739 Document No. 128:293011 The role of intracellular acidification in apoptosis. Famulski, Konrad S. (Molecular Oncology Program, Cross Cancer Inst., Edmonton, AB, T6G 1Z2, Can.). Kosmos (Krakow), 46(1), 45-51 (Polish) 1997. CODEN: KOSMEY. ISSN: 0023-4249. Publisher: Polskie Towarzystwo Przyrodnikow im. Kopernika.
AB A review with many refs. In many cell lines intracellular acidification occurs during apoptosis. This phenomenon was obsd. following various cytotoxic treatments, as well as following withdrawal of growth factors and activation of Fas receptor. It seems that ceramide, a novel signalling mol., could be at least partially responsible for intracellular acidification and ensuing cell death. The factors which alleviate the drop in cellular pH rescue cells from apoptosis, include Ras proto-oncoprotein, BCL-2 protein, inhibitors of protein phosphatases and activators of protein kinase C and the Raf/MAP kinase cascade. Intracellular acidification is the consequence of selective loss of pH regulation. It is caused by an alteration in the set point of the Na+/H+ antiport, a major proton extruding mechanism. However, a contribution of proton V-type ATPase and CFTR channel has also been postulated. Thus, more than one pathway can contribute to intracellular acidification during apoptosis. Addnl., cells contain enzymes and proteins thought to participate in apoptosis that operate at low pH: i.e., acidic endonuclease, ***transglutaminase*** , acidic sphingomyelinase and gelsolin. It is conceivable that every cell contains a dormant set of proteins the activity of which is triggered by a fall in the intracellular pH and help execute the programmed cell death.

L2 ANSWER 1586 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:190207 Document No. 128:269870 Reconstructed wheat gluten for use as a foaming agent or emulsifying agent in food preparation. Kato, Akio; Matsutomi, Naotoshi; Matsura, Akira (Amano Pharmaceutical Co., Ltd., Japan; Ajinomoto Co., Inc.). Jpn. Kokai Tokkyo Koho JP 10075716 A2 19980324 Heisei, 5 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1996-255406 19960904.
AB Reconstructed wheat gluten exhibiting high soly. and lacking bitter flavor is prepd. by a treatment with protease or acid followed by reconstruction with ***transglutaminase*** . The reconstructed wheat gluten is useful as a foaming agent or emulsifying agent for food.

L2 ANSWER 1587 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:182746 Document No. 128:255085 Involvement of the 90 kDa glycoprotein in adhesion of Nectria haematococca macroconidia. Kwon, Y. H.; Epstein, L. (Department of Environmental Science, Policy, and Management, University of California, Berkeley, CA, 94720-3112, USA). Physiological and Molecular Plant Pathology, 51(5), 287-303 (English) 1997. CODEN: PMPPEZ. ISSN: 0885-5765. Publisher: Academic Press Ltd..
AB Previously we demonstrated that Nectria haematococca macroconidia become adhesive within 5 min and adhere at the spore apices to substrata and to other spores. At the same time, the macroconidia produce mucilage at the spore tips which binds Con A (Con A) and produce a macroconidial-specific 90 kDa glycoprotein which binds Con A; Con A inhibits macroconidial adhesion. Here we demonstrate that snowdrop lectin, which specifically binds to .alpha.-mannose, also inhibits adhesion, and that polyclonal IgG prepd. against the 90 kDa glycoprotein inhibits adhesion of both ungerminated and germinated macroconidia. Antiadhesive activity of the IgG is reduced by incubation of the antibodies with mannan; the mannan alone has no effect on adhesion. These data, and the fact that the anti-90 kDa IgG did not bind to the deglycosylated glycoprotein, suggest that mannose residues on the 90 kDa glycoprotein are involved in adhesion of N. haematococca macroconidia. We also demonstrate that the anti-90 kDa IgG primarily binds to the region with the spore tip mucilage, and that two ***transglutaminase*** inhibitors, iodoacetamide and cystamine, reduce adhesion, the macroconidial tip mucilage, and the 90 kDa glycoprotein. Finally, consistent with compds. which become increasingly polymd., we show that visualization of the macroconidial tip mucilage and the detection of the 90 kDa glycoprotein is transient over time. We

postulate that a precursor of the 90 kDa glycoprotein in the spore tip mucilage is exocellularly cross-linked by a ***transglutaminase*** , and that the 90 kDa glycoprotein is a fungal glue.

L2 ANSWER 1588 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:180087 Document No. 128:317488 Altered distribution of G.alpha.h/type 2 ***transglutaminase*** following catecholamine deprivation is associated with depression of adrenoreceptor signal transduction in cultured ventricular zone germinal cells. Gill, Lukhbir S.; Pabbathi, Vijay K.; Vignes, Michel; Haynes, Laurence W. (School of Biological Sciences, University of Bristol, Bristol, BS8 1UG, UK). Brain Research, 788(1,2), 95-103 (English) 1998. CODEN: BRREAP. ISSN: 0006-8993. Publisher: Elsevier Science B.V..
AB Type 2 ***transglutaminase*** (Tg), which catalyzes the covalent crosslinking of cytoplasmic proteins during apoptosis, also functions as the .alpha. subunit of a heterodimeric G-protein (Gh) which can activate phospholipase C-.delta.1 during the signal transduction pathway linked to .alpha.1-adrenoreceptors. Continued stimulation of rat forebrain ventricular zone (VZ) germinal cells with the .alpha.1-agonist phenylephrine during development in vitro suppresses apoptosis and promotes DNA synthesis. Immunocytochem. with a monoclonal antibody to G.alpha.h/Tg reveals that .alpha.1-agonist deprivation during culture of VZ cells in the presence of a protein synthesis inhibitor results after 20 h in a loss of peripheral distribution of the protein and an increase in the reaction product of Tg in the cytoplasm of cells undergoing apoptosis. Using photoaffinity labeling, the authors obsd. reduced GTP binding to G.alpha.h/Tg in phenylephrine-deprived cultures. Formation of inositol triphosphate (IP3) and intracellular Ca2+ transients occurred in the presence of phenylephrine. In cultures grown in phenylephrine-deprived conditions in the presence of protein synthesis inhibitor, both the IP3 response and the amplitude and duration of Ca2+ transients were reduced. These results show that loss of signal transduction coincides with the onset of ***transglutaminase*** activity in VZ cells during a period when cell survival is reduced following withdrawal of .alpha.1-agonist, and support the hypothesis that Tg/G.alpha.h could be implicated in both signal transduction and programmed cell death.

L2 ANSWER 1589 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:178128 Document No. 128:214190 Tissue ***transglutaminase*** cDNA of human erythroleukemia cells. Fraij, Bassam M.; Birckbichler, Paul J.; Patterson, Manford K., Jr.; Gonzales, Robert A. (Oklahoma Medical Research Foundation, USA). U.S. US 5726051 A 19980310, 18 pp., Cont.-in-part of U.S. Ser. No. 126,119, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1994-247902 19940523. PRIORITY: US 1992-969702 19921103; US 1993-126119 19930923.
AB The present invention relates to cDNA derived from a 1.9 kb mRNA encoding a 64-kDa tissue ***transglutaminase*** (TGase H). The 1.9-kb mRNA was one of two mRNA's isolated from retinoic-acid treated HEL cells which hybridized with a previously isolated tissue TGase cDNA. The 1.9 kb mRNA was present in non-RA-treated HEL cells as well, but at a much lower concn. TGase H contained about 78% of the N-terminal amino acids of a previously reported tissue TGase. The loss of 22% of the amino acids did not significantly affect the pI and the active site region and the putative calcium binding site were totally conserved, so the TGase H appears to be a TGase isoform. The invention also relates to vectors and expression systems to produce the new tissue ***transglutaminase*** as well as the recombinantly-produced enzyme protein.

L2 ANSWER 1590 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:174603 Document No. 128:305469 A novel calcium-independent enzyme capable of incorporating putrescine into proteins. Tsai, Yu-Hui; Lai, Wen-Fu T.; Chen, Shi-Hsien; Johnson, Leonard R. (Graduate Institute of Cell and Molecular Biology, Taipei Medical College, Taipei, Taiwan). Biochemical and Biophysical Research Communications, 244(1), 161-166 (English) 1998. CODEN: BBRCA9. ISSN: 0006-291X. Publisher: Academic Press.
AB A Ca++-independent enzyme capable of incorporating [3H]-putrescine into proteins was detected in the rat intestine mucosa. The Ca++-independent incorporation of [3H]-putrescine into proteins was temp.-, pH-, time-, and dose-dependent. However, this enzyme was absent in the gastric mucosa. Similar to testicular Ca++-dependent ***transglutaminase*** , the

optimal pH of intestinal Ca++-independent enzyme was 9.0. At 10-5 M or less putrescine concns., the Ca++-independent enzyme in an intestinal cytosol prepn. showed a greater activity than did the Ca++-dependent ***transglutaminase*** . However, at higher putrescine concns., the latter showed a greater activity than did the former. Both the intestinal Ca++-dependent and independent enzymes were inhibited by cystamine, thermal labile at 50.degree.C and pptd. by 30 to 50% satn. of ammonium sulfate. The fact that these two enzymes shared many similar characteristics, with the exceptions of Ca++-requirement, suggests that they may have similar active site and intrinsic mol. function(s).

L2 ANSWER 1591 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:174200 Document No. 128:306798 Induction of retinoblastoma gene expression during terminal growth arrest of a conditionally immortalized fetal rat lung epithelial cell line and during fetal lung maturation. Levine, R. A.; Hopman, T.; Guo, L.; Chang, M. -J.; Johnson, N. (Department of Pathology, College of Veterinary Medicine, Cornell University, Ithaca, NY, 14853, USA). Experimental Cell Research, 239(2), 264-276 (English) 1998. CODEN: ECREAL. ISSN: 0014-4827. Publisher: Academic Press.

AB The process by which fetal lung epithelial cells differentiate into type 1 and type 2 cell is largely unknown. In order to study lung epithelial cell proliferation and differentiation we have infected 20-day fetal lung epithelial cells with a retrovirus carrying a temp.-sensitive SV40 T antigen (T Ag) and isolated several immortalized fetal epithelial cell lines. Cell line 20-3 has characteristics of lung epithelial cells including the presence of distinct lamellar bodies, tight junctions, keratin 8 and 18 mRNA, HFH8, and T1.alpha. mRNA and low levels of surfactant protein A mRNA. At 33.degree.C 20-3 grows with a doubling time of 21 h. At 40.degree.C the majority of cells cease to proliferate. Growth arrest is accompanied by significant morphol. changes including an increase in cell size, transition to a squamous phenotype that resembles type 1 cells, and an increase in the no. of multinucleated cells within the population. Greater than 95% of the cells incorporate [3H]thymidine into DNA at 33.degree.C whereas at 40.degree.C label incorporation drops to less than 20%. When shifted down to 33.degree.C 40% of the cells remain terminally growth arrested. In addn., cells plated at 40.degree.C have a reduced ability to form colonies when replated at 33.degree.C. Treatment with TGF-.beta. increases the percentage of cells that terminally growth arrest to greater than 80%. Growth arrest is accompanied by an increase in the levels of c-jun, jun D, cyclin D1, C/EBP-.beta., ***transglutaminase*** type II, and retinoblastoma (Rb) mRNA and an induction of p105, the hypophosphorylated, growth regulatory form of Rb. Evaluation of Rb mRNA in fetal lung indicates that it is induced 2.5-fold between 17 and 21 days of gestation. These studies indicate that 20-3 terminally growth arrests in culture at the nonpermissive temp. and that it may be useful in studying changes in gene expression that accompany terminal growth arrest during lung development.

L2 ANSWER 1592 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1998:173060 Document No. 128:305293 A highly conserved lysine residue on the head domain of type II keratins is essential for the attachment of keratin intermediate filaments to the cornified cell envelope through isopeptide crosslinking by ***transglutaminases*** . Candi, Eleonora; Tarcsa, Edit; Digiovanna, John J.; Compton, John G.; Elias, Peter M.; Marekov, Lyuben N.; Steinert, Peter M. (Laboratory of Skin Biology, National Institutes of Health, Bethesda, MD, 20892-2752, USA). Proceedings of the National Academy of Sciences of the United States of America, 95(5), 2067-2072 (English) 1998. CODEN: PNASA6. ISSN: 0027-8424. Publisher: National Academy of Sciences.

AB We have addressed the question of how keratin intermediate filaments are assocd. with the cell envelope at the periphery of cornified epidermal cells. Many peptides from human epidermal cell envelopes contg. isopeptide crosslinks inserted by ***transglutaminases*** in vivo have been characterized. A major subset involves the type II keratin chains keratin 1, 2e, 5, or 6 crosslinked to several protein partners through a lysine residue located in a conserved region of the V1 subdomain of their head domains. This sequence specificity was confirmed in in vitro crosslinking expts. Previously the causative mutation in a family with diffuse nonepidermolytic palinar-plantar keratoderma was shown to be the loss in one allele of the same lysine residue of the keratin 1 chain. Ultrastructural studies of affected palm epidermis have revealed

abnormalities in the and organization of keratin filaments subjacent to the cell envelope and in the shape of the cornified cells. Together, these data suggest a mechanism for the coordination of cornified cell structure by permanent covalent attachment of the keratin intermediate filament cytoskeleton to the cell envelope by trans-glutaminase crosslinking. Furthermore, these studies identify the essential role of a conserved lysine residue on the head domains of type II keratins in the supramol. organization of keratin filaments in cells.

L2 ANSWER 1593 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:172796 Document No. 128:153278 Interfacial Dilatational Properties of Milk Proteins Cross-Linked by ***Transglutaminase*** . Frgemand, Merete; Murray, Brent S. (Procter Department of Food Science, University of Leeds, Leeds, LS2 9JT, UK). Journal of Agricultural and Food Chemistry, 46(3), 884-890 (English) 1998. CODEN: JAFCAU. ISSN: 0021-8561. Publisher: American Chemical Society.
AB Milk proteins (.beta.-lactoglobulin and sodium caseinate) were adsorbed at air-water (A-W) and oil-water (O-W) interfaces and cross-linked with a microbial Ca2+-independent ***transglutaminase*** . Interfacial dilatational moduli were measured by interfacial tension relaxation. Moduli were generally higher at the O-W interface than at the A-W interface for native .beta.-lactoglobulin, but lower at the O-W interface for native sodium caseinate. Cross-linked films generally had higher dilatational moduli than non-cross-linked films at both the A-W and O-W interfaces. Esp. for .beta.-lactoglobulin, it was found that 2 h of crosslinking had a more marked effect at the O-W interface than at the A-W interface. This could be explained by greater unfolding of .beta.-lactoglobulin at the O-W interface, as confirmed by measurement of surface pressure-area (.pi.-A) isotherms for .beta.-lactoglobulin spread at both types of interface. For sodium caseinate enhanced unfolding and adsorption at the O-W interface may have inhibited enzyme action at the interface.

L2 ANSWER 1594 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:168956 Document No. 128:281277 Down-regulated proteins of mesenchymal tumor cells. Schenker, Thomas; Trueb, Beat (MEM-Institute, Division of Biology, University of Bern, Bern, CH-3010, Switz.). Experimental Cell Research, 239(1), 161-168 (English) 1998. CODEN: ECREAL. ISSN: 0014-4827. Publisher: Academic Press.
AB To identify proteins that are lost during the establishment of the transformed phenotype of a tumor cell, the authors have prepd. a subtracted cDNA library with mRNA from normal human fibroblasts and from their matched SV40 transformed counterparts. More than 40 clones were obtained that showed a dramatic redn. in their relative expression after oncogenic transformation. The proteins encoded by these clones could be grouped into four distinct classes: extracellular matrix proteins (fibronectin, .beta.ig-h3, collagen VI), enzymes (collagenase, urokinase), cytoskeletal proteins (vinculin, SM22) and regulatory proteins (.beta.-glycan, integrin-assocd. protein, myosin kinase, IGFBP-5). Six novel gene products were discovered during these expts., including a novel serine protease, a zyxin-like protein, an ankyrin-like protein, and a GTP-binding protein. Only four of all the transformation-sensitive cDNAs were consistently down-regulated when a variety of cell lines derived from spontaneous mesenchymal tumors was investigated: .beta.ig-h3, collagen VI, the novel ankyrin-like protein, and IGFBP-5. It is likely that these gene products play an important role in the maintenance of the normal phenotype.

L2 ANSWER 1595 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:168953 Document No. 128:293208 Regulated expression of tissue ***transglutaminase*** in Swiss 3T3 fibroblasts: effects on the processing of fibronectin, cell attachment, and cell death. Verderio, E.; Nicholas, B.; Gross, S.; Griffin, M. (Department of Life Sciences, Nottingham Trent University, Nottingham, NG11 8NS, UK). Experimental Cell Research, 239(1), 119-138 (English) 1998. CODEN: ECREAL. ISSN: 0014-4827. Publisher: Academic Press.
AB Tissue ***transglutaminase*** (tTgase) catalyzes the posttranslational modification of proteins by forming Ca2+-dependent intermol. .epsilon.(.gamma.-glutamyl) lysine crosslinks; however, its physiol. function is unclear despite increasing evidence for its involvement in the extracellular environment. To define where the enzyme is active and

characterizes targets of crosslinking the authors have modulated tTgase expression in stably transformed Swiss 3T3 cell lines, generated by transfecting tTgase cDNA under the control of a tetracycline-regulated inducible promoter. Induced expression of tTgase enabled the detection of two pools of ***transglutaminase*** antigen, one intracellular and the other extracellular, which has a cellular distribution comparable to fibronectin. Incubation of cells with the fluorescent tTgase substrate fluorescein cadaverine indicated incorporation only in the extracellular matrix of healthy cells even though the amine was freely permeable to cells. Incorporation paralleled the deposition of fibronectin during fibril assembly when monitored by immunofluorescence. Fibronectin polymn. was confirmed by Western blotting. Cell surface-related tTgase was further demonstrated by preincubation of cells with tTgase antibody which led to inhibition of activity and cell attachment. Activation of the intracellular tTgase by increasing cytosolic Ca2+ using ionomycin resulted in cell death accompanied by extensive crosslinking in the cytoplasm, nucleus, and cell substratum contacts of induced cells. These dead cells were not typical of those undergoing apoptosis or necrosis since they remained adherent, preserved their microtubule network, and showed little DNA fragmentation. Modulation of expression of tTgase has indicated a possible physiol. function for the enzyme in cell attachment, the crosslinking of fibronectin during fibril assembly, and the maintenance of cellular integrity in a novel form of cell death.

L2 ANSWER 1596 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:168189 Document No. 128:293197 Semenogelin I and semenogelin II, the major gel-forming proteins in human semen, are substrates for ***transglutaminase*** . Peter, Anders; Lilja, Hans; Lundwall, Ake; Malm, Johan (Department of Laboratory Medicine, Section for Clinical Chemistry, University Hospital, Lund University, Malmo, S-205 02, Swed.). European Journal of Biochemistry, 252(2), 216-221 (English) 1998. CODEN: EJBCAI. ISSN: 0014-2956. Publisher: Springer-Verlag.
AB The major seminal vesicle secreted proteins in human semen, semenogelin I and semenogelin II, interact non-covalently and via disulfide bridges to instantly form a coagulum upon ejaculation. The coagulum is liquefied after a few minutes due to the action of a prostatic serine protease, prostate-specific antigen (PSA). In contrast to rat semen, which forms an insol. plug within minutes of expulsion, no ***transglutaminase*** -mediated crosslinking has been demonstrated in ejaculated human semen. However, we here show that semenogelin I and semenogelin II, both in seminal vesicle fluid and purified from semen, are substrates for factor XIIIa, the fibrin crosslinking ***transglutaminase*** . The crosslinking of the semenogelins, which was conformation-dependent, and the incorporation of a fluorescence-labeled amine, were visualized by SDS/PAGE and Western blot. Purified semenogelin I and semenogelin II could be cross-linked sep. into complexes. Moreover, digestion of semenogelin with PSA produced fragments, some of which were cross-linked into complexes by factor XIIIa. We also found that PSA was unable to release any semenogelin fragments during exposure of the high mol.-mass complexes of cross-linked semenogelin to active PSA.

L2 ANSWER 1597 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:166796 Document No. 128:318459 ***Transglutaminase*** -induced crosslinking between subdomain 2 of G-actin and the 636-642 lysine-rich loop of myosin subfragment 1. Eligula, Luba; Li, Chuang; Phillips, Martin L.; Motoki, Masao; Seguro, Katsuya; Muhlrad, Andras (Department of Oral Biology, Hebrew University-Hadassah School of Dental Medicine, Jerusalem, 91120, Israel). Biophysical Journal, 74(2, Pt. 1), 953-963 (English) 1998. CODEN: BIOJAU. ISSN: 0006-3495. Publisher: Biophysical Society.
AB G-actin was covalently cross-linked with S1 in a bacterial ***transglutaminase*** -catalyzed reaction. The crosslinking sites were identified with the help of fluorescent probes and limited proteolysis as the Gln-41 on the DNase I binding loop of subdomain 2 in G-actin and a lysine-rich loop (residues 636-642) on the S1 heavy chain. The same lysine-rich loop was cross-linked to another region of G-actin in a former study. This indicates the existence of more than one G-actin-S1 complex. In contrast to G-actin, no crosslinking was induced between F-actin and S1 by the ***transglutaminase*** reaction. This shows that in F-actin the inner part of the DNase I binding loop, where Gln-41 is located, is not accessible for S1. The cross-linked G-actin-S1 polymd. upon addn. of 2 mM MgCl2 as indicated by electron microscopy and sedimentation expts.

The filaments obtained from the polymn. of cross-linked actin and S1 were much shorter than the control actin filaments. The ATPase activity of the cross-linked S1 was not activated by actin, whereas the K+(EDTA)-activated ATPase activity of S1 was unaffected by the crosslinking. The crosslinking between G-actin and S1 was not influenced by the exchange of the tightly bound calcium to magnesium; however, it was inhibited by the exchange of the actin-bound ATP to ADP. This finding supports the view that the structure of the DNase binding loop in ADP-G-actin is somewhere between the structures of ATP-G-actin and F-actin.

L2 ANSWER 1598 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:165113 Document No. 128:305516 The cell adhesion molecule C-CAM is a substrate for tissue ***transglutaminase*** . Hunter, Irene; Sigmundsson, Kristmundur; Beauchemin, Nicole; Obrink, Bjorn (Medical Nobel Institute, Department of Cell and Molecular Biology, Karolinska Institute, Stockholm, S-171 77, Swed.). FEBS Letters, 425(1), 141-144 (English) 1998. CODEN: FEBLAL. ISSN: 0014-5793. Publisher: Elsevier Science B.V..
AB C-CAM, a ubiquitously expressed cell adhesion mol. belonging to the carcinoembryonic antigen family, appears as two co-expressed isoforms, C-CAM-L and C-CAM-S, with different cytoplasmic domains, that can form homo-dimers in epithelial cells. In addn., C-CAM-L has been found in large mol. wt. forms suggesting posttranslational, covalent modification. Here we have investigated the possibility that the cytoplasmic domain of C-CAM-L can act as a ***transglutaminase*** substrate. Glutathione S-transferase fusion proteins of the cytoplasmic domains of rat and mouse C-CAM-L as well as free cytoplasmic domains, released by thrombin cleavage from the fusion proteins, were converted into covalent dimers by tissue ***transglutaminase*** . These results demonstrate that the cytoplasmic domains of rat and mouse C-CAM-L are substrates for tissue ***transglutaminase*** , and lend support to the notion that higher mol. wt. forms of C-CAM-L are formed by ***transglutaminase*** modification.

L2 ANSWER 1599 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:163676 Document No. 128:214198 Cloning and gene sequence of novel endoglucanases from Cellvibrio mixtus and C. gilvus. Bjornvad, Mads Eskelund; Nielsen, Preben (Novo Nordisk A/S, Den.; Bjornvad, Mads Eskelund; Nielsen, Preben). PCT Int. Appl. WO 9808940 A1 19980305, 118 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1997-DK348 19970826. PRIORITY: DK 1996-893 19960826; DK 1996-1015 19960917.
AB An enzyme prepn. consisting essentially of an endo-.beta.-1,4-glucanase (EC 3.2.1.4) derived from the bacterial genera Cellvibrio mixtus or Cellvibrio gilvus is produced by recombinant techniques using a cloned DNA sequence encoding the enzyme. Endo-.beta.-1,4-glucanase from C. mixtus DM 1523 comprises a gene-deduced sequence of 527 amino acids, including a signal peptide of 32 amino acid residues, a cellulose-binding domain belonging to family IIa (residues 33-134), a serine-rich linker (135-185), a cellulose-binding domain belonging to family X (186-234), a second serine-rich linker (235-277), and a catalytic domain (residues 278 to the end) belonging to family 45 of the glycosyltransferases. The endo-.beta.-1,4-glucanase has 2 conserved regions, a first amino acid sequence consisting of 15 amino acid residues having sequence and a second amino acid sequence consisting of 6 amino acid residues having sequence, and is useful in industrial application conventionally using cellulolytic enzymes. Techniques are described for constructing a hybrid endoglucanase comprising the C. mixtus cel45 core with Humicola insolens EG V linker and CBD, and for transformation and expression of the Cellvibrio enzyme in Pseudomonas fluorescens and P. cepacia.

L2 ANSWER 1600 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1998:158359 Document No. 128:294295 Expression of retinoic acid, triiodothyronine, and glucocorticoid hormone nuclear receptors is decreased in the liver of rats fed a hypercholesterolemia-inducing diet. Noel-Suberville, Catherine; Pallet, Veronique; Audouin-Chevallier,

Isabelle; Higueret, Paul; Bonilla, Stephane; Martinez, Alfredo J.; Zulet, Maria A.; Portillo, Maria P.; Garcin, Henri (Laboratory of Nutrition, University of Bordeaux I, Talence, 33405, Fr.). Metabolism, Clinical and Experimental, 47(3), 301-308 (English) 1998. CODEN: METAAJ. ISSN: 0026-0495. Publisher: W. B. Saunders Co..

AB Several studies have shown that dietary factors modulate cell signaling pathways. The aim of this study was to det. whether a hypercholesterolemia-inducing diet rich in satd. fat and cholesterol modifies rat liver expression of the nuclear receptors of retinoic acid (RAR), triiodothyronine (TR), and glucocorticoid hormone (GR), which are transcriptional factors. The exptl. diet contained coconut oil 25 g/100 g as a source of lipids, cholesterol 1 g/100 g, and cholic acid 0.5 g/100 g, and the control diet contained olive oil 5 g/100 g. After 26 days of feeding the hypercholesterolemia-inducing diet, a lower binding capacity of the nuclear receptors and a smaller amt. of their mRNA were obsd. Moreover, the activities of malic enzyme (ME) and tyrosine aminotransferase (TAT), whose gene promoters contain a response element to TR and GR, resp., were decreased. These changes occurred in a cellular environment characterized by a high level of cholesterol and free fatty acids (FFAs). Thus, two nonexclusive hypotheses can be proposed to explain this decreased expression of nuclear receptors, one emphasizing the effect of lipidic components on the cellular amt. of receptor ligands [retinoic acid (RA) and triiodothyronine (T3)], the other emphasizing a modification of the balance between nuclear receptors that could impede the upregulation of TR and RAR.

=> D L2 1720

L2 ANSWER 1720 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:560140 CAPLUS
DN 127:232897
TI Structural analysis of a missense mutation (Val414Phe) in the catalytic core domain of the factor XIIIA subunit
AU Aslam, S.; Yee, V. C.; Narayanan, S.; Duraisamy, G.; Standen, G. R.
CS Molecular Haematology Unit, Department of Haematology, Bristol Royal Infirmary, Bristol, BS2 8HW, UK
SO British Journal of Haematology (1997), 98(2), 346-352
CODEN: BJHEAL; ISSN: 0007-1048
PB Blackwell
DT Journal
LA English

=> D L2 1721-1750

L2 ANSWER 1721 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:556794 CAPLUS
DN 127:274516
TI Identification and sequence analysis of two new members of the SKALP/elafin and SPAI-2 gene family. Biochemical properties of the ***transglutaminase*** substrate motif and suggestions for a new nomenclature
AU Zeeuwen, Patrick L. J. M.; Hendricks, Wiljan; de Jong, Wilfried W.; Schalkwijk, Joost
CS Dep. Dermatol. Cell Biol. Histol., Biochemistry, Inst. Cellular Signaling, Univ. Nijmegen, Nijmegen, 6500 HB, Neth.
SO Journal of Biological Chemistry (1997), 272(33), 20471-20478
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English

L2 ANSWER 1722 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:556342 CAPLUS
DN 127:244677
TI Identification of cytoplasmic actin as an abundant glutaminyl substrate for tissue ***transglutaminase*** in HL-60 and U937 cells undergoing apoptosis
AU Nemes, Zoltan, Jr.; Adany, Roza; Balazs, Margit; Boross, Peter; Fesus, Laszlo

CS Departments of Biochemistry, University Medical School of Debrecen, Debrecen, H-4012, Hung.
SO Journal of Biological Chemistry (1997), 272(33), 20577-20583
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English

L2 ANSWER 1723 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:549073 CAPLUS
DN 127:243238
TI Effects of vitamin D3 on keratinocyte proliferation and differentiation in vitro. Modulation by ligands for retinoic acid and retinoid X receptors
AU Sorensen, S.; Solvsten, H.; Politi, Y.; Kragballe, Knut
CS Marselisborg Hospital, University Aarhus, Aarhus, DK-8000, Den.
SO Skin Pharmacology (1997), 10(3), 144-152
CODEN: SKPHEU; ISSN: 1011-0283
PB Karger
DT Journal
LA English

L2 ANSWER 1724 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:544217 CAPLUS
DN 127:189926
TI Additives for preparing sticky rice
IN Soeda, Takahiko; Hisahara, Chiho; Sakai, Tomoko
PA Ajinomoto Co., Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09206006	A2	19970812	JP 1996-16877	19960201
PRAI	JP 1996-16877		19960201		

L2 ANSWER 1725 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:543309 CAPLUS
DN 127:120869
TI Surimi Gel Enhancement by Bovine Plasma Proteins
AU Seymour, Thomas A.; Peters, Margo Y.; Morrissey, Michael T.; An, Haejung
CS Oregon State University Seafood Laboratory, Astoria, OR, 97103-2499, USA
SO Journal of Agricultural and Food Chemistry (1997), 45(8), 2919-2923
CODEN: JAFCAU; ISSN: 0021-8561
PB American Chemical Society
DT Journal
LA English

L2 ANSWER 1726 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:542535 CAPLUS
DN 127:175491
TI Fermentative manufacture of ***transglutaminase*** inhibitors
IN Ikura, Hiroshi; Oda, Kohei; Seguro, Katsuya
PA Ajinomoto Co., Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09206090	A2	19970812	JP 1996-23692	19960209
PRAI	JP 1996-23692		19960209		

L2 ANSWER 1727 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:542342 CAPLUS
DN 127:210340
TI Methods of inhibiting leaderless protein export using cardiac glycosides or aglycons
IN Florkiewicz, Robert Z.

PA Scripps Research Institute, USA
SO PCT Int. Appl., 60 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9728808	A1	19970814	WO 1997-US2237	19970212
	W: AL, AM, AT, AU, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: KE, LS, MW, SD, SZ, UG, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 5891855	A	19990406	US 1996-599895	19960212
	CA 2242245	AA	19970814	CA 1997-2242245	19970212
	AU 9721231	A1	19970828	AU 1997-21231	19970212
	AU 706644	B2	19990617		
	EP 828497	A1	19980318	EP 1997-906577	19970212
	EP 828497	B1	19990901		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 11500454	T2	19990112	JP 1997-528759	19970212
	AT 183922	E	19990915	AT 1997-906577	19970212
	EP 941733	A2	19990915	EP 1999-100073	19970212
	EP 941733	A3	19991201		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	ES 2140215	T3	20000216	ES 1997-906577	19970212
	US 6071885	A	20000606	US 1998-211290	19981214
	US 6107283	A	20000822	US 1999-322676	19990528
	US 6281197	B1	20010828	US 1999-466036	19991217
PRAI	US 1996-599895	A	19960212		
	EP 1997-906577	A3	19970212		
	WO 1997-US2237	W	19970212		
	US 1998-211290	A3	19981214		
	US 1999-322676	A1	19990528		

L2 ANSWER 1728 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:541985 CAPLUS
DN 127:204787
TI ***Transglutaminase*** and protein hydrolyzates as additives to fish paste
IN Tanno, Hiroyuki; Naruto, Yasushi; Soeda, Takatoshi
PA Ajinomoto Co., Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09206031	A2	19970812	JP 1996-22597	19960208
PRAI	JP 1996-22597		19960208		

L2 ANSWER 1729 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:532635 CAPLUS
DN 127:221296
TI Synthesis and Characterization of Enzymically-Crosslinked Poly(ethylene glycol) Hydrogels
AU Sperinde, Jeffrey J.; Griffith, Linda G.
CS Department of Chemical Engineering and Center for Biomedical Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02139-4307, USA
SO Macromolecules (1997), 30(18), 5255-5264
CODEN: MAMOBX; ISSN: 0024-9297
PB American Chemical Society
DT Journal
LA English

L2 ANSWER 1730 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:525644 CAPLUS
DN 127:232459
TI Apoptosis induction by inhibitors of Ser/Thr phosphatases 1 and 2A is associated with ***transglutaminase*** activation in two different human epithelial tumor lines
AU von Zezschwitz, Caroline; Vorwerk, Hilke; Tergau, Frithjof; Steinfelder, Hans Juergen
CS Institute of Pharmacology and Toxicology, University of Goettingen, Robert-Koch-Strasse 40, Gottingen, D-37075, Germany
SO FEBS Letters (1997), 413(1), 147-151
CODEN: FEBLAL; ISSN: 0014-5793
PB Elsevier
DT Journal
LA English

L2 ANSWER 1731 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:521255 CAPLUS
DN 127:171053
TI Acetaminophen metabolism and cytotoxicity in PC12 cells transfected with cytochrome P4502E1
AU Holownia, Adam; Mapoles, J.; Menez, J.F.; Braszko, Jan J.
CS Clinical Pharmacology Unit, Medical Academy of Bialystok, Ludwik Zamenhof Children's Hospital, Bialystok, 15-274, Pol.
SO Journal of Molecular Medicine (Berlin) (1997), 75(7), 522-527
CODEN: JMLME8; ISSN: 0946-2716
PB Springer
DT Journal
LA English

L2 ANSWER 1732 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:515554 CAPLUS
DN 127:232421
TI S-Nitrosylation regulates apoptosis
AU Melino, Gerry; Bernassola, Francesca; Knight, Richard A.; Corasaniti, Maria Tiziana; Nistico, Giuseppe; Finazzi-Agro, Alessandro
CS Biochem. Lab., Ist. Dermopatico Immacolata, Univ. of Rome Tor Vergata, Rome, 00133, Italy
SO Nature (London) (1997), 388(6641), 432-433
CODEN: NATUAS; ISSN: 0028-0836
PB Macmillan Magazines
DT Journal
LA English

L2 ANSWER 1733 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:510757 CAPLUS
DN 127:204613
TI Modification of several proteins by using Ca2+-independent microbial ***transglutaminase*** with high-pressure treatment
AU Nonaka, Masahiko; Ito, Ryuji; Sawa, Akiko; Motoki, Masao; Nio, Noriki
CS Food Res. & Development Lab., Ajinomoto Co., Inc., Kawasaki, 210, Japan
SO Food Hydrocolloids (1997), 11(3), 351-353
CODEN: FOHYES; ISSN: 0268-005X
PB Oxford University Press
DT Journal
LA English

L2 ANSWER 1734 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:510752 CAPLUS
DN 127:204612
TI Improvement of the pH-solubility profile of sodium caseinate by using Ca2+-independent microbial ***transglutaminase*** with gelatin
AU Nonaka, Masahiko; Matsuura, Yukihiro; Nakano, Kaoru; Motoki, Masao
CS Food Res. & Development Lab., Ajinomoto Co, Inc., Kawasaki, 210, Japan
SO Food Hydrocolloids (1997), 11(3), 347-349
CODEN: FOHYES; ISSN: 0268-005X
PB Oxford University Press
DT Journal
LA English

L2 ANSWER 1735 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:510698 CAPLUS
DN 127:204690
TI ***Transglutaminase*** : effect on rheological properties, microstructure and permeability of set style acid skim milk gel
AU Faergemand, M.; Qvist, K. B.
CS Dep. Dairy and Food Sci., Dairy Section, Royal Veterinary and Agricultural Univ., Frederiksberg, DK-1958, Den.
SO Food Hydrocolloids (1997), 11(3), 287-292
CODEN: FOHYES; ISSN: 0268-005X
PB Oxford University Press
DT Journal
LA English

L2 ANSWER 1736 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:510265 CAPLUS
DN 127:108241
TI Edible microcapsule and food containing the same
IN Soeda, Takahiko; Masayuki, Nakanishi; Inoue, Tsuguo
PA Ajinomoto Co., Ltd., Japan; Japan Capsular Products, Inc.
SO Eur. Pat. Appl., 8 pp.
CODEN: EPXXDW
DT Patent
LA English
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 782883	A2	19970709	EP 1997-100204	19970108
	EP 782883	A3	19990421		
	R: BE, CH, DE, ES, FR, GB, IT, LI, NL, SE				
	JP 09248137	A2	19970922	JP 1996-332315	19961212
	CN 1161790	A	19971015	CN 1997-101885	19970108
	US 6475542	B1	20021105	US 1997-780222	19970108
	US 2003008040	A1	20030109	US 2002-198964	20020722
PRAI	JP 1996-850	A	19960108		
	JP 1996-332315	A	19961212		
	US 1997-780222	A3	19970108		

L2 ANSWER 1737 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:508757 CAPLUS
DN 127:135017
TI Softening prevention of crispy confectioneries with ***transglutaminase***
IN Kuraishi, Tomotsugu; Kuhara, Tomoho; Soeda, Takatoshi
PA Ajinomoto Co., Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09191820	A2	19970729	JP 1996-6393	19960118
PRAI	JP 1996-6393		19960118		

L2 ANSWER 1738 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:508117 CAPLUS
DN 127:146010
TI Rapid induction of Fas antigen mRNA expression in vivo by cycloheximide
AU Kimura, Kotohiko; Yamamoto, Mikio
CS Department of Biochemistry, National Defense Medical College, Tokorozawa, 359, Japan
SO Cell Biochemistry and Function (1997), 15(2), 81-86
CODEN: CBFUDH; ISSN: 0263-6484
PB Wiley
DT Journal
LA English

L2 ANSWER 1739 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:505059 CAPLUS
DN 127:200342

TI Aging decreases the abundance of retinoic acid (RAR) and triiodothyronine (TR) nuclear receptor mRNA in rat brain: effect of the administration of retinoids
AU Enderlin, V.; Alfos, S.; Pallet, V.; Garcin, H.; Azaies-Braesco, V.; Jaffard, R.; Higueret, P.
CS Laboratoire de Nutrition, ISTAB, Av. des Facultes, Universite Bordeaux I, Talence, 33405, Fr.
SO FEBS Letters (1997), 412(3), 629-632
CODEN: FEBLAL; ISSN: 0014-5793
PB Elsevier
DT Journal
LA English

L2 ANSWER 1740 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:502402 CAPLUS
DN 127:118854
TI Purification and calcium dependence of ***transglutaminases*** from sheep hair follicles
AU Kumazawa, Yoshiyuki; Ohtsuka, Tomoko; Ninomiya, Daiki; Seguro, Katsuya
CS Food Development and Res. Laboratories, Ajinomoto Co., Inc., Kawasaki, 210, Japan
SO Bioscience, Biotechnology, and Biochemistry (1997), 61(7), 1086-1090
CODEN: BBBIEJ; ISSN: 0916-8451
PB Japan Society for Bioscience, Biotechnology, and Agrochemistry
DT Journal
LA English

L2 ANSWER 1741 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:497613 CAPLUS
DN 127:148434
TI Effective use of natural food resources with ***transglutaminase*** derived from microorganisms
AU Soeda, Takahiko
CS Central Res. Lab., Ajinomoto Co., Inc., Japan
SO New Food Industry (1997), 39(6), 9-16
CODEN: NYFIAM; ISSN: 0547-0277
PB Shokuhin Shizai Kenkyukai
DT Journal; General Review
LA Japanese

L2 ANSWER 1742 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:485657 CAPLUS
TI Enzymic modification of proteins to improve functionality.
AU Swaisgood, Harold E.; Huang, Xiaolin L.; Catignani, George L.
CS Southeast Dairy Foods Research Center, North Carolina State University, Raleigh, NC, 27695-7624, USA
SO Book of Abstracts, 214th ACS National Meeting, Las Vegas, NV, September 7-11 (1997), AGFD-020 Publisher: American Chemical Society, Washington, D. C.
CODEN: 64RNAO
DT Conference; Meeting Abstract
LA English

L2 ANSWER 1743 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:484398 CAPLUS
DN 127:188966
TI Opposite effects of the acute promyelocytic leukemia PML-retinoic acid receptor .alpha. (RAR.alpha.) and PLZF-RAR.alpha. fusion proteins on retinoic acid signaling
AU Ruthardt, Martin; Testa, Ugo; Nervi, Clara; Ferrucci, Pier Francesco; Grignani, Francesco; Puccetti, Elena; Grignani, Fausto; Peschle, Cesare; Pelicci, Pier Giuseppe
CS Department of Experimental Oncology, European Inst. of Oncology, Milan, 20141, Italy
SO Molecular and Cellular Biology (1997), 17(8), 4859-4869
CODEN: MCEBD4; ISSN: 0270-7306
PB American Society for Microbiology
DT Journal
LA English

L2 ANSWER 1744 OF 3981 CAPLUS COPYRIGHT 2003 ACS

AN 1997:483455 CAPLUS
DN 127:94183
TI ***Transglutaminase*** inhibitors of Aspergillus and Penicillium as antithrombics
IN Fujioka, Tomoyuki; Tsujita, Yoshio; Ogita, Takeshi; Suzuki, Keiko; Hosoya, Takeshi; Kagasaki, Takeyuki; Sakaida, Yoshiaki; Kinoshita, Take
PA Sankyo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 09169693	A2	19970630	JP 1996-262861	19961003
PRAI JP 1995-268142		19951017		

L2 ANSWER 1745 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:481358 CAPLUS
DN 127:188751
TI Lack of induction of tissue ***transglutaminase*** but activation of the preexisting enzyme in c-Myc-induced apoptosis of CHO cells
AU Balajthy, Zoltan; Kedei, Noemi; Nagy, Laszlo; Davies, Peter J. A.; Fesus, Laszlo
CS Dep. of Biochemistry, University Medical School of Debrecen, Debrecen, H-4012, Hung.
SO Biochemical and Biophysical Research Communications (1997), 236(2), 280-284
CODEN: BBRCA9; ISSN: 0006-291X
PB Academic
DT Journal
LA English

L2 ANSWER 1746 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:477752 CAPLUS
DN 127:186876
TI Aryl hydrocarbon receptor knockout mice (AHR-/-) exhibit liver retinoid accumulation and reduced retinoic acid metabolism
AU Andreola, Fausto; Fernandez-Salguero, Pedro M.; Chiantore, Maria V.; Petkovich, Martin P.; Gonzalez, Frank J.; De Luca, Luigi M.
CS Division of Basic Sciences, National Cancer Institute, NIH, Bethesda, MD, 20892-4255, USA
SO Cancer Research (1997), 57(14), 2835-2838
CODEN: CNREA8; ISSN: 0008-5472
PB American Association for Cancer Research
DT Journal
LA English

L2 ANSWER 1747 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:471186 CAPLUS
DN 127:156673
TI Age-related decreases in mRNA for brain nuclear receptors and target genes are reversed by retinoic acid treatment
AU Enderlin, Valerie; Pallet, Veronique; Alfos, Serge; Dargelos, Elise; Jaffard, Robert; Garcin, Henri; Higueret, Paul
CS Laboratoire Nutrition, Universite Bourdeaux I, Talence, 33405, Fr.
SO Neuroscience Letters (1997), 229(2), 125-129
CODEN: NELED5; ISSN: 0304-3940
PB Elsevier
DT Journal
LA English

L2 ANSWER 1748 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:459521 CAPLUS
DN 127:174273
TI Differential regulation of human keratinocyte growth and differentiation by a novel family of protease-activated receptors
AU Derian, Claudia K.; Eckardt, Annette J.; Andrade-Gordon, Patricia
CS The R. W. Johnson Pharmaceutical Research Institute, Spring House, PA, 19477-0776, USA
SO Cell Growth & Differentiation (1997), 8(7), 743-749

CODEN: CGDIE7; ISSN: 1044-9523
PB American Association for Cancer Research
DT Journal
LA English

L2 ANSWER 1749 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:451242 CAPLUS
DN 127:171167
TI Antiproliferative effect of curcumin (diferuloylmethane) against human breast tumor cell lines
AU Mehta, Kapil; Pantazis, Panayotis; McQueen, Theresa; Aggarwal, Bharat B.
CS Dep. Bioimmunotherapy, Univ. Texas MD Anderson Cancer Center, Houston, TX, 77030, USA
SO Anti-Cancer Drugs (1997), 8(5), 470-481
CODEN: ANTDEV; ISSN: 0959-4973
PB Rapid Science Publishers
DT Journal
LA English

L2 ANSWER 1750 OF 3981 CAPLUS COPYRIGHT 2003 ACS
AN 1997:433942 CAPLUS
DN 127:172921
TI Tridegin, a new peptidic inhibitor of factor XIIIa, from the blood-sucking leech Haementeria ghilianii
AU Finney, Sarah; Seale, Lisa; Sawyer, Roy T.; Wallis, Robert B.
CS Biopharm (U.K.) Ltd., Dyfed, SA4 1XB, UK
SO Biochemical Journal (1997), 324(3), 797-805
CODEN: BIJOAK; ISSN: 0264-6021
PB Portland Press
DT Journal
LA English

=> D L2 1808,1809,1816,1820,1828,1834,1836,1842,1843,1862,1885,1890 CBIB ABS

L2 ANSWER 1808 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1997:257929 Document No. 126:315878 ***Transglutaminase*** activity is increased in Alzheimer's disease brain. Johnson, Gail V. W.; Cox, Teresa M.; Lockhart, Jason P.; Zinnerman, Marcus D.; Miller, Michael L.; Powers, Richard E. (Dep. of Psychiatry and Behavioral Neurobiology, University of Alabama at Birmingham, Birmingham, AL, 35294-0017, USA). Brain Research, 751(2), 323-329 (English) 1997. CODEN: BRREAP. ISSN: 0006-8993. Publisher: Elsevier.
AB ***Transglutaminase*** is a calcium-activated enzyme that crosslinks substrate proteins into insol., often filamentous aggregates resistant to proteases. Because the neurofibrillary tangles in Alzheimer's disease have similar characteristics, and because tau protein, the major component of these tangles is an excellent substrate of ***transglutaminase*** in vitro, ***transglutaminase*** activity and levels were measured in control and Alzheimer's disease brain. Frozen prefrontal cortex and cerebellum samples from Alzheimer's disease and control cases matched for age and postmortem interval were used in the analyses. Total ***transglutaminase*** activity was significantly higher in the Alzheimer's disease prefrontal cortex compared to control. In addn. the levels of tissue ***transglutaminase*** , as detd. by quant. immunoblotting, were elevated approx. 3-fold in Alzheimer's disease prefrontal cortex compared to control. To the authors' knowledge, this is the first demonstration that ***transglutaminase*** is increased in Alzheimer's disease brain. There were no significant differences in ***transglutaminase*** activity or levels in the cerebellum between control and Alzheimer's disease cases. Because the elevation of ***transglutaminase*** in the Alzheimer's disease samples occurred in the prefrontal cortex, where neurofibrillary pathol. is usually abundant, and not in the cerebellum, which is usually spared in Alzheimer's disease, it can be suggested that ***transglutaminase*** could be a contributing factor in neurofibrillary tangle formation.

L2 ANSWER 1809 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1997:257712 Document No. 126:327239 Hydrolysis of .gamma.:.epsilon. isopeptides by cytosolic ***transglutaminases*** and by coagulation factor XIIIa. Parameswaran, Kumarapuram N.; Cheng, Xiang-Fei; Chen, Ellen

C.; Velasco, Pauline T.; Wilson, James H.; Lorand, Laszlo (Dep. Cell Mol. Biol., Northwestern Univ. Med. Sch., Chicago, IL, 60611, USA). Journal of Biological Chemistry, 272(15), 10311-10317 (English) 1997. CODEN: JBCHA3. ISSN: 0021-9258. Publisher: American Society for Biochemistry and Molecular Biology.

AB N.epsilon.-(.gamma.-glutamyl)lysine cross-links, connecting various peptide chain segments, are frequently the major products in ***transglutaminase*** -catalyzed reactions. We have now investigated the effectiveness of these enzymes for hydrolyzing the .gamma.:.epsilon. linkage. Branched compds. were synthesized, in which the backbone on the .gamma.-side of the cross-bridge was labeled with a fluorophor (5-(dimethylamino)-1-naphthalenesulfonyl or 2-aminobenzoyl) attached through an .epsilon.-aminocaproyl linker in the N-terminal position, and the other branch of the bridge was constructed with Lys methylamide or diaminopentane blocked by 2,4-dinitrophenyl at the N.alpha. position. Hydrolysis of the cross-link could be followed in these internally quenched substrates by an increase in fluorescence. In addn. to the thrombin and Ca2+-activated human coagulation Factor XIIIa, cytosolic ***transglutaminases*** from human red cells and from guinea pig liver were tested. All three enzymes were found to display good isopeptidase activities, with Km values of 10-4 to 10-5 M. Inhibitors of transamidation were effective in blocking the hydrolysis by the enzymes, indicating that expression of isopeptidase activity did not require unusual protein conformations. We suggest that ***transglutaminases*** may play a dynamic role in biol. not only by promoting the formation but also the breaking of N.epsilon.-(.gamma.-glutamyl)lysine isopeptides.

L2 ANSWER 1816 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1997:228357 Document No. 126:292587 Polymerization of soy protein digests by microbial ***transglutaminase*** for improvement of the functional properties. Babiker, El Fadil E.; Khan, M. A. S.; Matsudomi, Naotoshi; Kato, Akio (Department of Biological Chemistry, Yamaguchi University, Yamaguchi, 753, Japan). Food Research International, 29(7), 627-634 (English) 1996. CODEN: FORIEU. ISSN: 0963-9969. Publisher: Elsevier.

AB Protease- and acid-treated soy proteins were polymd. by microbial ***transglutaminase*** (TGase) in order to improve their functional properties. Although the protease digests and acid hydrolyzates were considerably insol., the soy protein digests or hydrolyzates polymd. by TGase were sol., despite being composed of higher mol. wt. fractions ((11.8-99.4) .times. 106) compared to that of the native soy protein (0.48 .times. 106). The surface hydrophobicity of the polymd. proteins was greatly decreased, compared to that of the protease digests and acid hydrolyzates, suggesting that the exposed hydrophobic residues of the polymd. peptides were buried inside the polymd. mols. The emulsifying properties of the polymd. soy proteins were greatly improved compared to those of the untreated, protease- or acid-treated proteins. The foaming properties of the polymd. soy proteins were also improved. The bitterness of the protease digests and acid hydrolyzates of soy proteins was diminished by the polymn. with TGase treatment.

L2 ANSWER 1820 OF 3981 CAPLUS COPYRIGHT 2003 ACS

1997:219335 Document No. 126:291784 Increase in ***transglutaminase*** and its extracellular products in response to an inflammatory stimulus by lipopolysaccharide. Bowness, J. Michael; Tarr, Alan H. (Department Biochemistry Molecular Biology, University Manitoba, Winnipeg, MB, R3E OW3, Can.). Molecular and Cellular Biochemistry, 169(1&2), 157-163 (English) 1997. CODEN: MCBIB8. ISSN: 0300-8177. Publisher: Kluwer.

AB ***Transglutaminase*** (TGase) activities were measured in rat tissues 1-7 days after i.p. injection of saline or lipopolysaccharide (LPS) and in the cells and media from pre-confluent human fibroblasts cultured for two days in the presence of absence of LPS. .epsilon.-(.gamma.-Glutamyl)lysine and [3H]putrescine-labeled-glutamyl derivs. in extracellular and cellular fibroblast proteins were also measured. Three effects of LPS were obsd. Firstly, total TGase activity is greater in the tissues from the LPS-injected animals, with the max. increase occurring at 1 day in dermis, epidermis and liver, at 5 days in the aorta and, after a decrease at 2-5 days at 7 days in the panniculus muscle. Secondly, the fraction of the total activity which is buffer-extractable is greater on days 1 and/or 2 in all the tissues from the LPS-injected rats. Thirdly, in cultures of human fibroblasts, LPS increases that fraction of bound [3H]putrescine and of TGase and its .gamma.-glutamylamine products which

occurs in the extracellular medium. In addn., a higher concn. of TGase-derived crosslinks was found in extracellular as opposed to intracellular proteins. In conjunction with previous findings in skin wound healing and in atherosclerosis these results support the concept of an extracellular function for tissue TGase and indicate that there is a widespread assocn. of increases in TGase and its extracellular products with inflammation and the healing or fibrotic processes which follow it.

L2 ANSWER 1828 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1997:176420 Document No. 126:263229 Application of ***transglutaminase*** for development of low-salt, low-fat health foods. Soeda, Takahiko (Food Res. Development lab., Ajinomoto Co., Inc., Japan). New Food Industry, 39(2), 33-39 (Japanese) 1997. CODEN: NYFIAM. ISSN: 0547-0277. Publisher: Shokuhin Shizai Kenkyukai.
AB A review with 11 refs. on application of ***transglutaminase*** for development of low-salt, low-fat health foods.

L2 ANSWER 1834 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1997:147254 Document No. 126:198131 Tissue ***transglutaminase*** in mesenchymal tumor cells. Schenker, Thomas; Trueb, Beat (Institute for Biomechanics, University of Bern, Bern, CH-3010, Switz.). Apoptosis, 1(2), 126-130 (English) 1996. CODEN: APOPFN. ISSN: 1360-8185. Publisher: Rapid Science Publishers.
AB During our search for novel transformation-sensitive proteins whose synthesis is abolished in tumor cells we found a cDNA clone coding for tissue ***transglutaminase*** . This enzyme was identified, at the protein as well as the mRNA level, in normal human fibroblasts, but was completely missing in their matched SV40 transformed counterparts. Since tissue ***transglutaminase*** has been implicated in cell cycle regulation and apoptosis, we investigated the possibility of whether this enzyme might represent a neg. marker for tumor cells. We found that its synthesis varied largely among 10 cell lines derived from spontaneous mesenchymal tumors. While cells from a rhabdomyosarcoma and a chondrosarcoma did not produce it at all, an extremely high expression was obsd. in cells from an osteosarcoma and a liposarcoma. Thus, tissue ***transglutaminase*** is not a tumor-related marker.

L2 ANSWER 1836 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1997:132810 Document No. 126:182966 Purification and characterization of ***transglutaminase*** from Japanese oyster (Crassostrea gigas). Kumazawa, Yoshiyuki; Sano, Koh-ichiro; Seguro, Katsuya; Yasueda, Hisashi; Nio, Noriki; Motoki, Masao (Food Research and Development Laboratories, Ajinomoto Co. Inc., Kawasaki, Japan). Journal of Agricultural and Food Chemistry, 45(3), 604-610 (English) 1997. CODEN: JAFCAU. ISSN: 0021-8561. Publisher: American Chemical Society.
AB A total of 73% ***transglutaminase*** (TGase) activity was detected in the gills and mantles of Japanese oysters, and TGase was purified by (NH4)2SO4 fractionation, followed by column chromatog. Two types of TGase with mol. wts. of 84 kDa (TG-1) and 90 kDa (TG-2) were obtained. The optimum pH was 8.0 for both TGases, and the optimum temps. for TG-1 and TG-2 were 40 and 25.degree., resp. The activity of TG-1 increased with NaCl concns., whereas that of TG-2 was inhibited by NaCl. In the absence of NaCl, the activity of TG-1 increased with CaCl2 concns. up to 100 mM, but the concn. required to express full activity of TG-2 was 25 mM. This CaCl2 concn. was lowered to 25 mM for TG-1 in the presence of 0.5M NaCl, but not changed for TG-2. .epsilon.-(.gamma.-Glutamyl)lysine was not detected in fresh oysters but was detected in processed oysters, suggesting the possibility that the intrinsic TGases react in the manufg. process of oyster products.

L2 ANSWER 1842 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1997:125050 Document No. 126:222089 Purification and characterization of ***transglutaminase*** from walleye pollack liver. Kumazawa, Yoshiyuki; Nakanishi, Kazuo; Yasueda, Hisashi; Motoki, Masao (Food Research and Development Laboratories, Ajinomoto Co., Inc., Kawasaki, 210, Japan). Fisheries Science, 62(6), 959-964 (English) 1996. CODEN: FSCIEH. ISSN: 0919-9268. Publisher: Japanese Society of Fisheries Science.
AB ***Transglutaminase*** (TGase, EC 2.3.2.13) from walleye pollack Theragra chalcogramma liver was purified to electrophoretical homogeneity by Q-Sepharose and S-Sepharose chromatogs. The purified enzyme of 0.34 mg was obtained from 15 g of liver tissue and 591-fold purifn. was achieved

from the liver ext. The mol. wt. was estd. to be 77 kDa by SDS-polyacrylamide gel electrophoresis. The optimum pH and temp. for monodansyl cadaverine incorporation to N,N'-dimethylated casein were 9.0 and 50.degree., resp. The purified enzyme required Ca2+ above 3 mM for the max. activity, and Sr2+ also fully activated the enzyme. The activity was inhibited by sulfhydryl reagent, suggesting this enzyme was a thiol enzyme, the same as mammalian TGases. By this purified TGase, the gelation of myosin B soln. was catalyzed, possibly through the polymn. of myosin heavy chains.

L2 ANSWER 1843 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1997:124492 Document No. 126:130652 Microbial process for producing ***transglutaminase*** and use for food gelling. Kobayashi, Katsunori; Yamanaka, Shigeru; Tanita, Yuko; Tsuyoshi, Naoko; Fudo, Ryosuke; Shinozaki, Junko; Yokozeki, Kenzo; Suzuki, Shunichi (Ajinomoto Co., Inc., Japan; Kobayashi, Katsunori; Yamanaka, Shigeru; Tanita, Yuko; Tsuyoshi, Naoko; Fudo, Ryosuke; Shinozaki, Junko; Yokozeki, Kenzo; Suzuki, Shunichi). PCT Int. Appl. WO 9641866 A1 19961227, 41 pp. DESIGNATED STATES: W: AU, CN, JP, US; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1996-JP1569 19960610. PRIORITY: JP 1995-141824 19950608; JP 1995-199487 19950804.
AB A process for producing ***transglutaminase*** which comprises incubating a microorganism belonging to the genus Micrococcus, Clostridium, Torulopsis, Rhizopus, or Monascus in a medium, thus producing the target ***transglutaminase*** in the medium or cells and then harvesting the ***transglutaminase*** ; and a process for producing gel substances by using the ***transglutaminase*** . This process makes it possible to economically and quickly produce ***transglutaminases*** . Also claimed is a method for screening ***transglutaminases*** -producing microorganisms.

L2 ANSWER 1862 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1997:28196 Document No. 126:73958 ***Transglutaminase*** from Streptoverticillium ladakanum and application to minced fish product. Tsai, Guo-Jane; Lin, Shang-May; Jiang, Shann-Tzong (Dep. Marine Food Sci., Natl. Taiwan Ocean Univ., Chi-lung, 202, Taiwan). Journal of Food Science, 61(6), 1234-1238 (English) 1996. CODEN: JFDSAZ. ISSN: 0022-1147. Publisher: Institute of Food Technologists.
AB The ***transglutaminase*** (TGase) from Streptoverticillium ladakanum was purified to electrophoretic homogeneity after ammonium sulfate fractionation and Blue Sepharose Fast Flow chromatog. The mol. wt. of the purified TGase was 30.5 kDa estd. by Superdex 75HR gel filtration, and 37.5 kDa by SDS-PAGE. This enzyme, with optima at pH at 6.0 and 50.degree.C was very stable at pH 5.0 ~ 7.0. It was strongly inhibited by PCMB, PMSF, Pb2+, Zn2+ and Cu2+, but not affected by EDTA and Ca2+. This suggested that the purified TGase was calcium-independent and its active center contained cysteine. It catalyzed the crosslinking of fish myosin heavy chain and substantially increased the gel strength of mackerel surimi.

L2 ANSWER 1885 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1996:735190 Document No. 126:16088 Some characteristics of a microbial protein crosslinking enzyme: ***Transglutaminase*** . Seguro, Katsuya; Nio, Noriki; Motoki, Masao (Food Res. Development Lab., Ajinomoto Company, Inc., Kawasaki, 210, Japan). ACS Symposium Series, 650(Macromolecular Interactions in Food Technology), 271-280 (English) 1996. CODEN: ACSMC8. ISSN: 0097-6156. Publisher: American Chemical Society.
AB A review with 67 refs. Some characteristics of a ***transglutaminase*** derived from a variant of Streptoverticillium mobaraense (MTGase) were investigated. MTGase catalyzes the crosslinking of most food proteins, such as caseins, soybean globulins, gluten, actin, myosins, and egg proteins, through the formation of .epsilon.-(.gamma.-glutamyl)lysine bond, as well as the well-known guinea pig liver enzyme. Mol. wt. as detd. by SDS-PAGE and mass spectrometry was 38,000 and 37.824, resp. This indicates MTGase is a simple, monomeric enzyme. Inhibitory effects by thiol-modifying agents as well as copper, lead, and zinc ions on MTGase indicate that MTGase is a thiol-enzyme. For digestion of the MTGase-catalyzed crosslinked proteins, .gamma.-glutamyltransferase was found to cleave the .epsilon.-(.gamma.-glutamyl)lysine bond into lysine and glutamate. Lysine in the .epsilon.-(.gamma.-glutamyl)lysine bond was,

actually, utilized as an essential amino acids in rats.

L2 ANSWER 1890 OF 3981 CAPLUS COPYRIGHT 2003 ACS
1996:709940 Document No. 126:115982 ***Transglutaminase*** induction by various cell death and apoptosis pathways. Fesus, L.; Madi, A.; Balajthy, Z.; Nemes, Z.; Szondy, Z. (Medical School, Univ. Debrecen, Debrecen, H-4012, Hung.). Experientia, 52(10/11), 942-949 (English) 1996. CODEN: EXPEAM. ISSN: 0014-4754. Publisher: Birkhaeuser.

AB A review with 84 refs., discussing the induction and regulation of ***transglutaminases*** , particularly of tissue type ***transglutaminase*** , in the mol. program of cell death. One of the effector elements of various cell death pathways is the covalent crosslinking of cellular proteins by ***transglutaminases*** . A wide range of signalling pathways can lead to the parallel induction of apoptosis and ***transglutaminase*** , providing a handle for better understanding the exact mol. interactions responsible for the mechanism of regulated cell death.

	L #	Hits	Search Text	DBs
1	L1	945	TRANSGLUTAMINASE	USPAT ; US-PG PUB
2	L2	1061	RENATURE OR (RE ADJ NATURE)	USPAT ; US-PG PUB
3	L3	127929	ENZYME	USPAT ; US-PG PUB
4	L5	1012	L3 AND L2	USPAT ; US-PG PUB
5	L6	94	L3 SAME L2	USPAT ; US-PG PUB
6	L4	13	L1 AND L2	USPAT ; US-PG PUB
7	L7	80945	"15" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
8	L8	101320	"16" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
9	L9	56736	"17" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
10	L10	80910	"18" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
11	L11	45289	"19" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
12	L12	124348	"20" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
13	L13	62673	"21" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
14	L14	86717	"22" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
15	L15	48830	"23" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB

	L #	Hits	Search Text	DBs
16	L16	75136	"24" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
17	L17	52454	"25" NEAR5 (UNITS OR U)	USPAT ; US-PG PUB
18	L18	5	L7 SAME L1	USPAT ; US-PG PUB
19	L19	3	L8 SAME L1	USPAT ; US-PG PUB
20	L20	0	L9 SAME L1	USPAT ; US-PG PUB
21	L21	0	L10 SAME L1	USPAT ; US-PG PUB
22	L22	0	L11 SAME L1	USPAT ; US-PG PUB
23	L23	14	L12 SAME L1	USPAT ; US-PG PUB
24	L24	0	L13 SAME L1	USPAT ; US-PG PUB
25	L25	1	L14 SAME L1	USPAT ; US-PG PUB
26	L26	0	L15 SAME L1	USPAT ; US-PG PUB
27	L27	0	L16 SAME L1	USPAT ; US-PG PUB
28	L28	3	L17 SAME L1	USPAT ; US-PG PUB
29	L29	17	L18 OR L19 OR L23 OR L25 OR L28	USPAT ; US-PG PUB